Wake Forest Baptist Medical Center	**CP 20 - Fluid Specimen Handling and Processing**	**Dept:**	Central Processing Lab
CLIA Medical Director, Gregory Pomper, MD **Signature: Refer to Title 21 for Electronic signature**			

1. General Procedure Statement:

A. Purpose: To provide laboratory testing personnel with guidelines for processing fluid samples sent to the laboratory for testing.

B. Responsible Department/Scope:

i Procedure owner/Implementer: Central Processing
ii. Procedure prepared by: Julie H Simmons
iii. Who performs procedure: Department staff/management

C. Definitions:

Vitreous Fluid: Fluid in the eye located between the lens and the retina. Specimen obtained from the eye via a syringe inserted into the eye. Limited fluid can be submitted.

Synovial Fluid: Viscous fluid found in the cavities of the joints (such as knee).

BAL (Broncho alveolar lavage): Fluid collected when bronchoscope is passed through mouth or nose into appropriate airway in the lungs with an appropriate amount of fluid that is introduced and then collected for testing.

CSF: Cerebrospinal fluid: Clear, colorless body fluid found in the brain and spinal cord.

Pleural: Fluid found between the layers of membranes that line the pleura and surround the lungs (pleural cavity/space).

Peritoneal: Fluid found in the peritoneal cavity (space between the layers of tissue that line the belly's wall and the abdominal organs)

Pericardial: Fluid surrounding the heart.

Ascites: Fluid in the peritoneal cavity

D. Sections:

I. Specimen Orders Accessioning
II. Specimen Aliquoting and Distribution
III. Locating Fluid Specimens

2. Procedure: I. Specimen Orders Accessioning

Chemical Risk Assessment: low
Biological Risk Assessment: mod
Protective Equipment: Lab coat, gloves
Reagents: NA
Supplies: NA
Equipment: Hood
Specimen Requirements: See below

STEPS	INSTRUCTIONS	CHANGE / APPROVAL
1.0	**Fluid specimens are delivered to the laboratory.** *Refer to Attachment A: Handling Fluid Specimens Checklist/Flow chart*	
2.0	**Verify the specimens are labeled appropriately with two unique identifiers.**	
3.0	**Determine the Fluid Specimen Type and obtain the *Fluid Specimen Checklist/flowchart.*** 3.1 Body Fluid – Peritoneal, Pleural, Ascites, Pericardial, etc. 3.2 Bronchial Alveolar Lavage (BAL) 3.3 Cerebral Spinal Fluid (CSF) *Refer to Attachment B: Labeling of Cerebral Spinal Fluid* 3.4 Synovial Fluid 3.5 Vitreous eye Fluid *Refer to Attachment C: Handling Vitreous (Eye) Fluids*	
4.0	**All body fluids MUST be looked up in Specimen Inquiry.** 4.1 Select the "Current" tab to view orders. (If you don't you may choose the wrong order.) 4.2 Determine if Cytology has been ordered on the specimen a. If Cytology is ordered and no requisition was sent with the specimen • Select the Cytology order in Order Inquiry • Click on the "Order Number" hyperlink at the bottom of the screen • Scroll down to "Reprint Inpatient Order Requisition" • Click on the hyperlink • Right Click • Select Print b. Do NOT select Cytology orders and complete the Beaker collection process	

STEPS	INSTRUCTIONS	CHANGE / APPROVAL
5.0	**Verify which clinical lab fluid orders are associated with the specimen** 5.1 If the same test has been ordered multiple times, **a.** Select the order and review the Comment section on the report at the bottom of the screen. **b.** Determine if the order is for your current specimen and/or if the patient has multiple fluid specimens 5.2Review all Unlisted Lab orders for tests on the fluid *Refer to Attachment D: Fluid Specimen Test Reference*	
6.0	**Perform the collection process in Beaker for all Beaker Clinical Lab orders not already accessioned.** Note: Already accessioned orders should not appear under the "Current" tab, but are viewable under "All Labs" tab 6.1 Select the fluid orders for the specimen • Chemistry, Hematology, Microbiology, & Sendouts 6.2 Click "Collect Specimens" 6.3 Click "Print Labels" 6.4 Enter the collection information 6.5 Close the Collection screen	
7.0	**Using the "Receiving" activity, receive the Chemistry, Hematology, & Sendout samples by scanning the barcodes**	
8.0	**Highlight all received samples and enter a Lab Comment** 8.1 If cytology orders were placed, enter "Sample sent to Cytology" • Smart phrase .cyto converts to "Sample sent to Cytology" 8.2 If no cytology orders were placed, enter "No Cytology Order" • Smart phrase .nocyto converts to "No Cytology Order"	
9.0	**Place all labels and requisitions in the biohazard bag with the specimen**	
10.0	**Place samples for the Spin person to pick up.**	

2. Procedure: II. Specimen Aliquoting and Distribution

Chemical Risk Assessment: low
Biological Risk Assessment: mod
Protective Equipment: Lab coat, gloves
Reagents: NA
Supplies: NA
Equipment: Hood
Specimen Requirements: See below

<table>
<tr><th>STEPS</th><th>INSTRUCTIONS</th><th>CHANGE / APPROVAL</th></tr>
<tr><td>1.0</td><td>Determine if the fluid has been sufficiently aliquoted by the collecting location</td><td></td></tr>
<tr><td>2.0</td><td>For specimens not sufficiently aliquoted by the collection location:
2.1 Label the appropriate tube type for each section / test

<table>
<tr><th>Department</th><th>Instructions</th></tr>
<tr><td>Microbiology</td><td>a. Deliver labels with sample in the original container after aliquots for other sections have been removed using sterile technique</td></tr>
<tr><td>Chemistry</td><td>a. Urine Chemistry Tube; min. volume 0.5ml;
b. Label with Beaker label</td></tr>
<tr><td>Hematology</td><td>a. Urine Chemistry Tube;
b. Min. volume 0.5ml;
c. Label with Beaker label</td></tr>
<tr><td>Sendouts</td><td>a. Provide Sendouts with labels.
b. Sendouts will return labeled containers with minimum volume requirements</td></tr>
<tr><td>Cytology</td><td>a. Original container or urine cup;
b. Min. volume 0.5ml, prefer as much as possible;
c. Label with taglets containing patient name and MRN; keep requisition with aliquot
d. Place specimens in the Cytology hold bin or after hours in the Cytology box in the Hematology walk-in refrigerator.</td></tr>
</table>

Note: If insufficient volume for minimum volumes listed, testing priority by the Ordering Provider may be required. Work with the lab sections to determine if a smaller volume is acceptable.</td><td></td></tr>
</table>

<table>
<tr><th>STEPS</th><th>INSTRUCTIONS</th><th>CHANGE / APPROVAL</th></tr>
<tr><td>3.0</td><td>Create aliquots for all testing under the biosafety cabinet using sterile technique.
3.1 Initial the label of each aliquot you created.
3.2
<table><tr><th>Volume</th><th>Steps</th></tr><tr><td>Large</td><td>a. Create an extra aliquot in urine cup or chemistry tube
b. Label with the fluid type
c. Store in the extra rack or hold bin of the Spin refrigerator</td></tr><tr><td>Small</td><td>a. Store the remaining volume in the extra rack or hold bin of the Spin refrigerator</td></tr></table>
Exception: If the original container is sent to Micro, they will retain the remaining sample</td><td></td></tr>
<tr><td>4.0</td><td>Deliver labeled aliquots, additional labels, and requisitions, as applicable, to the appropriate testing sections.
Note: Cytology requisition must accompany Cytology aliquot</td><td></td></tr>
<tr><td>5.0</td><td>For specimens aliquoted by the collecting location, deliver specimen, labels, and requisitions, as applicable, to the appropriate lab section for testing</td><td></td></tr>
</table>

2. Procedure: III. Locating Fluid Specimens

Chemical Risk Assessment: low
Biological Risk Assessment: mod
Protective Equipment: Lab coat, gloves
Reagents: NA
Supplies: NA
Equipment: Hood
Specimen Requirements: NA

STEPS	INSTRUCTIONS	CHANGE / APPROVAL
1.0	**Receive an inquiry about fluid.** 1.1 Begin an immediate check for fluid.	
2.0	**Check Beaker to determine if any testing was performed on the fluid.** 2.1 Check to see if an extra tube was created or a 'freeze and hold.' 2.2 Retrieve specimen if extra or frozen.	
3.0	**Determine the date the fluid was sent by asking caller or checking in Beaker.** 3.1 Possible locations to check: a. Walk-in refrigerator. b. Micro refrigerator. c. Send outs rack/refrigerator	

3. Review/Revised/implemented:

All protocols must be reviewed every two years by medical director or designee.
All new protocols that have major revisions must be signed by the CLIA Director.
All reviewed protocols with minor revisions can be signed by the designated section Medical Director or designee.

4. Related Policies/Procedures: NA

5. References: NA

6. Attachments:

Attachment A: Handling Fluid Specimens Checklist/Flow chart
Attachment B: Labeling of Cerebral Spinal Fluids Reference
Attachment C: Handling Vitreous Fluids
Attachment D: Fluid Specimen Test Reference
CP 20 Fluid Specimen Test Reference Document.pdf
- Commonly ordered fluid tests, but not all inclusive of available fluid orders

Attachment E: Fluid Definitions

7. Revised/Reviewed Dates and Signatures:

Refer to archive history/title21

Attachment A: Handling Fluid Specimens checklist/flowchart

Name/MRN: _____

(Or place small taglet)

Fluid Type: _____

Date/Time Received in Central Processing: _____

Check orders in Beaker: _____(Initial)

Tests are present for which labs?

_____Cytology Tests *(designate in computer with either cyto sent/not sent)*

_____Microbiology

_____Chemistry

_____Hematology

_____ Flow

_____ Send outs

_____ Misc Freeze/Hold

Is there enough to aliquot? _____ Yes _____ No

YES – aliquot, label, initial.

NO - (not enough to aliquot)

1. Call physician _____(name).
2. List priority of testing:

3. Pass the priority to the section(s). (make a copy of this form for the section)

Note: Micro usually needs the sample first before other testing is done.
Print, receive labels for other areas. Notify areas that tests may need to be cancelled.

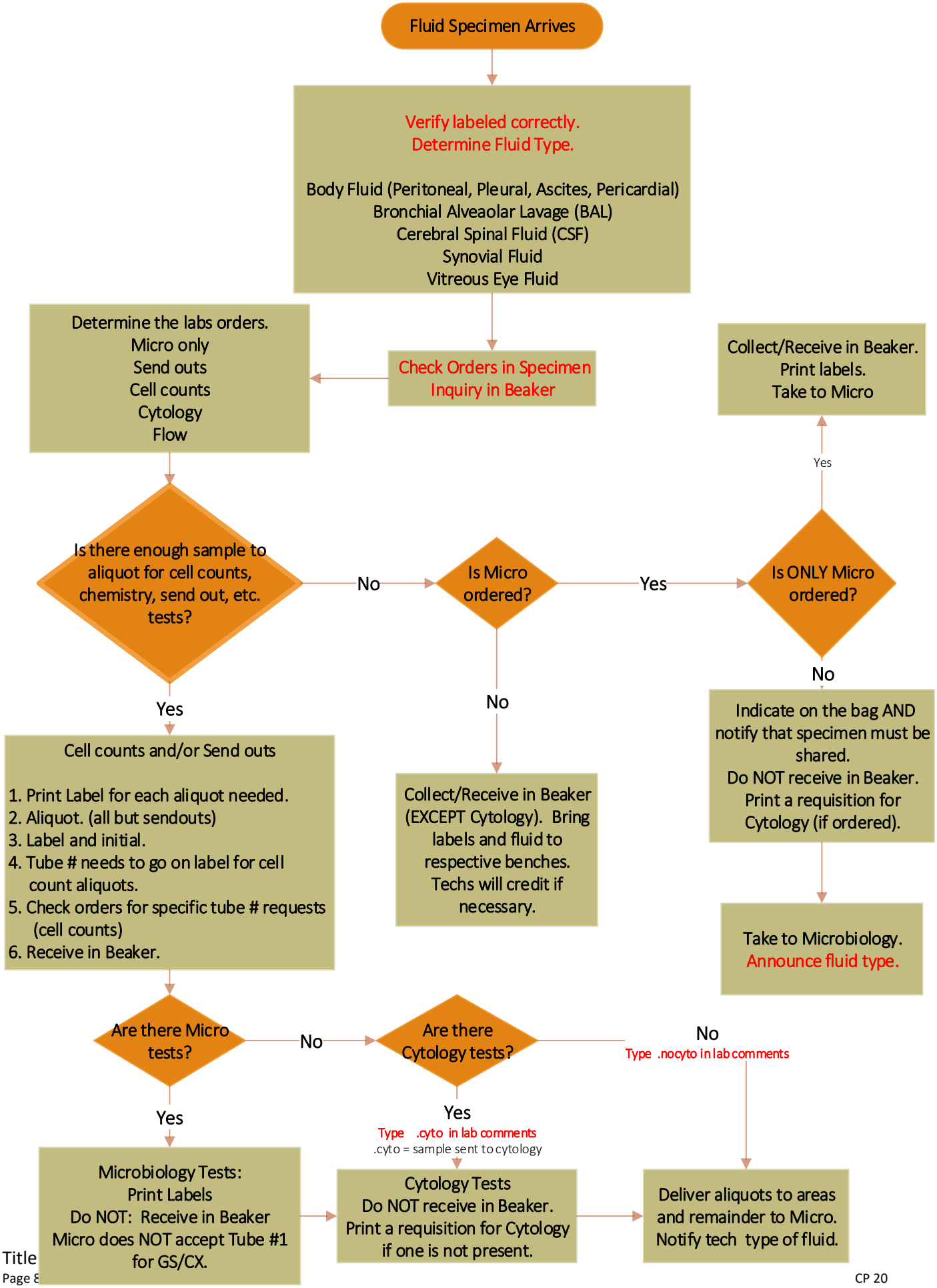
Date/Time Delivered To:

Micro _____ (NOTIFY Tech type of fluid)

Cytology _____

Chemistry _____

Hematology _____


Fluid Specimen Arrives
Verify labeled correctly.
Determine Fluid Type.
Body Fluid (Peritoneal, Pleural, Ascites, Pericardial)
Bronchial Alveaolar Lavage (BAL)
Cerebral Spinal Fluid (CSF)
Synovial Fluid
Vitreous Eye Fluid
Check Orders in Specimen Inquiry in Beaker
Determine the labs orders.
Micro only
Send outs
Cell counts
Cytology
Flow
Collect/Receive in Beaker.
Print labels.
Take to Micro
Yes
Is there enough sample to aliquot for cell counts, chemistry, send out, etc. tests?
No
Is Micro ordered?
Yes
Is ONLY Micro ordered?
No
Yes
Cell counts and/or Send outs
1. Print Label for each aliquot needed.
2. Aliquot. (all but sendouts)
3. Label and initial.
4. Tube # needs to go on label for cell count aliquots.
5. Check orders for specific tube # requests (cell counts)
6. Receive in Beaker.
No
Collect/Receive in Beaker (EXCEPT Cytology). Bring labels and fluid to respective benches. Techs will credit if necessary.
Indicate on the bag AND notify that specimen must be shared.
Do NOT receive in Beaker.
Print a requisition for Cytology (if ordered).
Take to Microbiology.
Announce fluid type.
Are there Micro tests?
No
Are there Cytology tests?
No
Type .nocyto in lab comments
Yes
Yes
Type .cyto in lab comments
.cyto = sample sent to cytology
Microbiology Tests:
Print Labels
Do NOT: Receive in Beaker
Micro does NOT accept Tube #1 for GS/CX.
Cytology Tests
Do NOT receive in Beaker.
Print a requisition for Cytology if one is not present.
Deliver aliquots to areas and remainder to Micro.
Notify tech type of fluid.

Attachment B: Labeling of Cerebral Spinal Fluid

NOTE: If you are not sure if the tubes are labeled with the corresponding tests for that tube, call the ordering unit to verify if the tubes were labeled based on the testing desired on each specific tube.

1. Label each tube with the test label corresponding to the tests to be run on that specific tube.
    a. Each tube has an embossed number on the tube to indicate the order of collection – Please collect in this order whenever possible. If order is mixed up, please indicate on the tube the correct collection order tube number.
    b. The recommended testing for each tube is:
        - 1- Protein, Glucose, Lactate
        - 2-Microbiology, Serology, PCR
        - 3-Cell Count, Flow Cytometry
        - 4-Cytology, Extra to Freeze
        - If two Cell Counts are ordered, it is recommended to use tubes 1 and 4.
2. If you have more tubes of CSF than Beaker labs, place a patient chart label on the additional tube and indicate it is an EXTRA tube
    a. The lab will then place an order for the extra tube CSF and HOLD the tube.
3. If you have more labels than tubes of CSF, place only one label on each tube, indicate on the additional stickers which tube to perform testing on, and send the additional sticker with the specimens to the lab – Perform the collection process on all orders.
    a. If you only have 2 tubes of CSF, place the Beaker Cell Count and Culture label on the corresponding tube for testing and send additional labels such as chemistry tests with the specimens.
    b. If you have 1 tube of CSF, place one of the Beaker labels on the tube and send the additional labels with the specimen.

Attachment C: Handling Vitreous Fluids

1. Vitreous fluid usually arrives in a small syringe with very small quantity.

2. There may also be a vitreous wash in a large bag, but those are not always accompanied.

3. Check any additional labels that were sent.
   3.1 Look at the orders in the computer to see if anything was not already printed out or collected.
   3.2 Identify what to collect because the sample type will say “Vitreous Fluid”.
   NOTE: There are not Vitreous specific orders like there are with CSF, Synovial, and BAL.
   3.3 If there are lots of orders and an obvious lack of sample, call the provider for the priority of testing.

4. There are usually Micro and Send Out orders, with the occasional Cell Count.
   4.1 If there are tests that need to be poured off (Cell Count or Chemistry), take into account the volume received to determine if need to give the sample to Micro first.

5. If there are no Cell Count or Chemistry orders, give the sample to Micro to pour off what they need. Make sure labels are present for any additional send out orders.
   5.1 Micro will give it to Send Outs after they remove their sample. Send Out labels must be in the bag or If unable to obtain label write “Share Micro and Send Outs”.

Attachment D: Fluid Specimen Test Reference

Fluid Specimen Test Reference		
Fluid Type	**Test Name**	**Test Mnemonic**
Cerebral Spinal Fluid (CSF)	Cell Count w/Diff	LAB212
	CSF Glucose	LAB185
	CSF Protein	LAB195
	CSF Lactate	LAB2771
	CSF LDH	LAB2772
	Chloride, CSF	LAB2767
	Culture, CSF/BF	LAB2639
	Enterovirus PCR	LAB3176
	HSV 1 and 2 PCR	LAB3191
	Varicella Zoster PCR	LAB3572
	CMV DNA PCR, Qualitative	LAB3171
	EBV PCR (Quantitative)	LAB3577
	Adenovirus Qualitative PCR	LAB3566
	Meningitis-Encephalitis (ME) Panel CSF HOLD	LAB4718
	Meningitis-Encephalitis (ME) Panel	LAB4594
	Multiple Sclerosis Panel 2 (Sendout)	LAB4559
	VDRL, CSF (Sendout)	LAB2780
	Pyruvic Acid, CSF (Sendout)	LAB4436
	Unlisted Labs (Research, Sendouts) - Must review all orders for testing on CSF	LAB3053
	Specimen for Flow (Non-Blood)	LAB4721
	Cerebrospinal Fluid - Cytology	LAB3362

Fluid Type	Test Name	Test Mnemonic
Bronchial Alveolar Lavage (BAL)	Bronchial Alveolar Lavage Cell Count and Diff	LAB3074
	Aspergillus Galactomannan, BAL (Sendout)	LAB4295
	Legionella DNA PCR, Qual (Sendout)	LAB4560
	Culture, Resp Quant	LAB2682
	Pneumocystis Direct (PNDFA)	LAB2680
	Respiratory Virus Panel	LAB3202
	Acid Fast Culture	LAB2629
	Fungal Culture	LAB240
	HSV PCR Non-Blood (Herpes Simplex Virus)	LAB3191
	CMV PCR (Qualitative) (Cytomegalovirus)	LAB3171
	Specimen for Flow (Non-Blood)	LAB4721
	Bronchoalveolar Lavage - Cytology	LAB3361
	Bronchial Washing - Cytology	LAB3360
	Bronchoalveolar Lavage for Quantitation of Lipid Laden Macrophages - Cytology	LAB3742
Synovial (Joint) Fluid	Synovial Fluid Exam (Cell Count w/Diff, Crystals, & Mucin Clot)	LAB3155
	Synovial Fluid Cell Count	LAB3152
	Synovial Fluid Crystals	LAB3153
	Synovial Fld / Mucin Clot Test	LAB3154
	Chemistry Tests - See Body Fluid Specimen Type: Synovial	
	Culture, CSF/BF	LAB2639
	Specimen for Flow (Non-Blood)	LAB4721
	Synovial Fluid - Cytology	LAB3739

Fluid Type	Test Name	Test Mnemonic
Body Fluid Specimen Type MUST Match - Peritoneal - Pleural - Ascites - Pericardial - Synovial	Body Fluid Cell Ct w/Diff	LAB210
	Protein, Fluid	LAB196
	Glucose Body Fluid	LAB186
	Albumin, Fluid	LAB177
	Amylase Body Fluid	LAB178
	Lipase Body Fluid	LAB2773
	CEA, Fluid	LAB3777
	Triglyceride, Fluid	LAB3775
	Cholesterol Fluid	LAB3773
	Creatinine, Fluid	LAB65
	Chloride, Fluid	LAB183
	LDH Body Fluid	LAB188
	Potassium Body Fluid	LAB193
	Sodium Body Fluid	LAB197
	Lactic Acid, Fluid	LAB3774
	Uric Acid, Fluid	LAB3812
	Culture, CSF/BF	LAB2639
	Culture, Peritoneal Fluid	LAB2679
	Specimen for Flow (Non-Blood)	LAB4721
	Peritoneal Fluid - Cytology	LAB3367
	Pleural Fluid - Cytology	LAB3368
	Pericardial Fluid - Cytology	LAB3366
	Miscellaneous Body Cavity Fluid - Cytology	LAB3735

Attachment E: Fluid Definitions

Fluid	Definition	Comments
Vitreous	Fluid in the eye located between the lens and the retina. Specimen obtained from the eye via a syringe inserted into the eye. Limited fluid can be submitted.	
Synovial	Viscous fluid found in the cavities of the joints (such as knee).	
BAL (Broncho alveolar lavage)	Fluid collected when bronchoscope is passed through mouth or nose into appropriate airway in the lungs with an appropriate amount of fluid that is introduced and then collected for testing.	
CSF: Cerebrospinal fluid	Clear, colorless body fluid found in the brain and spinal cord.	
Pleural	Fluid found between the layers of membranes that line the pleura and surround the lungs (pleural cavity/space).	
Peritoneal	Fluid found in the peritoneal cavity (space between the layers of tissue that line the belly's wall and the abdominal organs).	
Pericardial	Fluid surrounding the heart.	
Ascites	Fluid in the peritoneal cavity	