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APPENDIX A

SPECIMEN REQUISITIONS

All specimens submitted to the Laboratory must be accompanied by a requisition. The requisition must be legible and include the following information:

Patient's Last Name, First Name
Identification Number - Required for TMH patients, may not apply to outside referrals
Patient's Location - Bed number or referring clinic, office
Ordering Physician - Or other person authorized by State Law to order laboratory tests
Location and Telephone Number of Person Ordering Test - if not previously on file in Laboratory
Time and Date of Collection
Test(s) to be Performed
Clinical Information - if pertinent

LABELING OF LABORATORY SPECIMENS

The primary specimen container must be labeled with the following information:

Inpatient:
Patient's Last Name, First Name
Identification Number – FIN number
Date and Time of Collection
Colleague's ID code

Outpatient:
Patient's Last Name, First Name
Date of Birth or Social Security Number

Inpatients must have patient identification verified using an identification bracelet and confirmed verbally (if possible) with the patient.

See **Patient care Policy 40-68** (https://spark.tmh.org/Interact/Pages/Content/Document.aspx?id=1329) for complete blood bank identification protocol.

LABORATORY PRIORITIES

STAT: The **STAT** priority should be used in emergency/life or death situations only. Tests that are available "stat" are so noted in the Laboratory Services Manual database online. Most of these tests can be completed within one hour following receipt of the specimen in the Laboratory. The Laboratory does experience unpredictable peak workload periods, during which it may be impossible to meet this one-hour turnaround time unless special communication is received. Therefore, cases of extreme urgency should be brought to the attention of a Laboratory Supervisor.

PROMPT: **Prompt** requests are generally completed within two hours following receipt of request. Only those tests listed on the STAT list (which follows) can be performed on a Prompt basis. Again, a two-hour turnaround may be impossible to meet during peak periods.

TIMED: Tests to be drawn at specific times should be designated as "**Timed**". Generally, results for these tests will be available following the next "run" of that particular test in the Laboratory.

ROUTINE: Tests ordered as "**Routine**" will be run at the Laboratory's convenience. Results will generally be available within eight hours.

NOTE: Some tests are only run on a scheduled basis. These scheduled tests may be ordered under any of the above priorities, but the specimen will only be collected. Results will not be available until the next scheduled run is complete. Special requests can be referred to the Clinical Pathologist, or Pathologist on call.

CRITICAL VALUES

All critical values are called no later than thirty (30) minutes after the completion of testing to the ordering location.

TEST SET UP SCHEDULE

Each tests' individual information sheet states the scheduled setup time. The specimens must be received by the indicated time in order to qualify for testing. Specimens received after the cut-off time will be held for the next scheduled test run.

REPORTING SCHEDULE - TURN AROUND TIMES

Each tests' individual information sheet states the scheduled reporting time.

Tests that are referred to a reference laboratory must be in the TMH Laboratory by 11:00 am Monday through Friday and 9:30 AM on Saturday and Sunday to insure being sent out on the same day. Please contact the Laboratory if an emergency situation exists. A Laboratory Supervisor can request the Reference Laboratory to phone results as soon as the test is completed.

Last revision, 10/28/2016 prc, 07/09/2020 prc

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APPENDIX B

SERUM YIELD FROM RED or GOLD TOP TUBES

One full red (filled to the second line) capillary collection vessel will yield approximately 0.15 mL serum.

One full 7.0 mL gold or red-top tube will yield approximately 2.3 mL serum.

One full 10.0 mL red-top tube will yield approximately 3.3 mL serum.

One full 15.0 mL red-top tube will yield approximately 5.0 mL serum.

TUBE STOPPER COLOR CODING

STOPPER COLOR	ADDITIVE	MINIMUM BLOOD VOLUME FOR ACCURATE RESULTS
GOLD	Gel separator and clot activator for collection of serum.	At least 0.1 mL
LAVENDER/PURPLE	EDTA	At least 1.0 mL
LIGHT GREEN	PST Gel and Lithium Heparin	At least 0.1 mL
DARK GREEN	Sodium Heparin	At least 0.1 mL
LIGHT BLUE	Sodium Citrate	***MUST BE FULL DRAW***
ROYAL BLUE (with Lav. Label)	Trace element free EDTA (used primarily for heavy metals testing)	At least 0.1 mL
ROYAL BLUE (with Red Label)	Sterile, no additive	At least 0.1 mL
GRAY	Sodium Fluoride Potassium Oxalate	At least 0.1 mL
YELLOW	ACD	7 mL

***Tubes are evacuated to draw a given volume of fluid. Anticoagulant tubes contain the appropriate amount of anticoagulant for the amount of blood drawn by vacuum. Each tube must be filled completely by vacuum to ensure a correct blood-to-anticoagulant ratio. Over or under filling may affect laboratory results.**

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APPENDIX C

URINE COLLECTION PROCEDURES

Urine specimens for Culture or Routine Urinalysis must be delivered to the Laboratory within 2 hours of collection or be refrigerated.

TYPES AND CONTAINERS:

RANDOM - Collected at any time of the day or night into a chemically clean 6 oz. plastic container with lid.

FASTING - Void four or more hours following the ingestion of food and discard specimen. Collect the next voided specimen into a chemically clean 6 oz. container with lid.

FIRST MORNING SPECIMEN - Void before retiring and discard specimen. On arising in the morning, collect the first voided urine in a chemically clean container.

24 HOUR SPECIMEN - On arising in the morning, void urine, discard it and record time. Collect all urine excreted during the next 24 hours - day and night- and pour it into a large wide-mouth container. Keep the container refrigerated. Exactly 24 hours after first voided discarded specimen, void urine, save it, and add to the container.

MIDSTREAM- Have a chemically clean collection vessel at hand. Initiate urination with first portion going in toilet. When approximately half of the voiding is completed, without interrupting the process of urination, a portion of urine is collected in the vessel and the latter portion of the urine flow is passed into the toilet.

CLEAN CATCH SPECIMEN - Several different kits for these are provided for inpatients from CSR. Supplies for outpatients are available from the laboratory. Sterile containers are required for routine cultures. Directions are in the kits. The patient must be instructed to properly clean the area surrounding the urethra. Cleansing pads are provided in the kits.

NOTE: All specimens must be clearly labeled with the patient's name, Medical Record Number/FIN number, and date and time of collection. This information must be on the side of the container, not on the top.

All requisition slips must be clearly labeled with the patient's name, Medical Record Number/FIN number, room number, date and time of collection, doctor's name, and test(s) to be performed.

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APPENDIX D

STOOL COLLECTION PROCEDURE

Stool specimens must be collected in clean, wide mouthed containers, a bed pan, on clean newspaper or commercial stool catch device. Stool specimens must not be taken from toilet bowls or be contaminated with urine.

STOOL FOR PARASITE ANALYSIS

The patient should avoid using antacids, antidiarrheal medication, antibiotics, or oily laxatives. Ova and parasite examinations should be performed before barium studies or the patient must wait 7-10 days after barium or bismuth studies before collecting the stool specimens. Presence of barium or bismuth in the stool specimen is cause for rejection of the specimen, and arrangements must be made to recollect the specimen after seven days.

Due to the intermittent passage of certain parasitic elements, examination of three specimens spaced several days apart is recommended. In-house patient specimens must be spaced at least 12 hours apart. If the time interval is less than 12 hours, an additional specimen will be requested.

USE OF SAF VIALS FOR OVA AND PARASITE EXAMINATION AND PARA-PAK ENTERIC PLUS VIAL FOR ROUTINE CULTURE

If unable to deliver to the Laboratory within two hours the stool specimen should be placed in the appropriate transport media. The SAF VIAL system is used for Ova and Parasite specimens. An appropriate (i.e. bloody, mucoid, watery) area of stool should be selected and sampled with the collection spoons provided in the caps of the containers. Sufficient stool is added to the container to bring the liquid level up to the "Fill to Here" line. This will result in approximately 5.0 mL of sample. To ensure adequate sampling of a formed stool, material should be removed from the sides, ends and middle of the bolus. Agitate the specimen with the spoon along the sides of the container, tighten the cap and shake firmly to ensure that the specimen is adequately mixed. When mixing is completed, the specimen should appear homogeneous. Label the vials appropriately with the patient's name, date and time of collection. Also indicate the consistency of the stool from which the sample was taken. Vials containing stool should be transported at room temperature and must be received in the Laboratory within 96 hours.

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APPENDIX E

COLLECTION AND TRANSPORT OF MICROBIOLOGY CULTURE SPECIMENS

TEST	SPECIMEN SOURCE	COMMENTS
ROUTINE CULTURE	Ear, Nose, Throat – BBL Culture Swab (white cap)	Transport to Lab within 2 hours, or store at room temperature for up to 24 hours
	Urine - sterile double tube collection system	Transport to Lab within 2 hours, or refrigerate for up to 24 hours See **APPENDIX C**
	Wound or Genital Cultures - place swab in BBL Culture Swab (white cap)	Transport to Lab within 2 hours, or store at room temperature for up to 24 hours
	Body Fluids (CSF, Pleural, etc.) place specimen in sterile container	TRANSPORT TO LAB IMMEDIATELY AT ROOM TEMPERATURE
	Sputum - sterile container	Transport to Lab within 2 hours, or store at room temperature for up to 24 hours
	Surgical Swab – BBL Culture Swab (white cap)	TRANSPORT TO LAB IMMEDIATELY AT ROOM TEMPERATURE
	Surgical Tissue – sterile container	TRANSPORT TO LAB IMMEDIATELY AT ROOM TEMPERATURE
LEGIONELLA CULTURE	Sputum - sterile container	Transport to Lab within 2 hours, or store at room temperature for up to 24 hours.
	Body Fluid (Pleural) or Tissue specimen - place in sterile container	TRANSPORT TO LAB IMMEDIATELY AT ROOM TEMPERATURE
AFB CULTURE WITH STAIN	All specimens - sterile container	Transport to Lab within 2 hours or refrigerate for up to 24 hours. Outreach/outpatient areas may hold specimen refrigerated over weekend.
FUNGUS CULTURE	All Specimens require sterile containers. Tissue or body fluids – sterile container. Swab - BBL Culture Swab.	Transport to Lab within 2 hours or refrigerate for up to 24 hours. IF A SYSTEMIC FUNGUS IS SUSPECTED, STORE AT ROOM TEMPERATURE AND TRANSPORT IMMEDIATELY.

COLLECTION AND TRANSPORT OF MICROBIOLOGY CULTURE SPECIMENS

TEST	SPECIMEN SOURCE	COMMENTS
STREP THROAT CULTURE (Beta Group A Culture)	Throat – BBL Culture Swab (white cap	Transport to Lab within 2 hours or refrigerate for up to 24 hours. Outreach/outpatient areas may hold specimen refrigerated over weekend.
BETA STREP GROUP B SCREEN (CULTURE)	Vaginal/Rectal swab in BBL Culture Swab (white cap).	Transport to Lab within 2 hours or refrigerate for up to 24 hours. Outreach/outpatient areas may hold specimen refrigerated over weekend.
GC SCREEN (CULTURE)	Varied sources - GC Media Obtain media from laboratory, inoculate at bedside, tape plate shut and deliver to laboratory immediately. If cannot be delivered within 2 hours, collect on swab and transport swab.	Transport to Lab within 2 hours. Outreach/outpatient areas may hold specimen at room temperature over weekend. See **APPENDIX G.**
BLOOD CULTURE	See **APPENDIX S**	Deliver immediately to Lab. Outreach/outpatient areas may store at room temperature and transport within 24 hours. Isolator tubes must be transported within 2 hours.

Last Revision Date: 8/1/13 csl, 4.3.2019 csl

Last Review Date: 8/1/13 csl; 05/19/2015 csl, 06/21/2016 prc, 9.12.2018 csl, 4.3.2019 csl, 9.24.2020 csl; 07/19/2022; 11/10/2022 av

APPENDIX F

COLLECTION PROCEDURES FOR CHLAMYDIA TESTING

SUMMARY of CHLAMYDIA TESTING PROCEDURES

TEST NAME	TEST CODE	ACCEPTABLE SPECIMEN SOURCES	COLLECTION MEDIA/CONTAINER
Chlamydia trachomatis, PCR Performed Monday-Sunday	PCRCHG	MALE: URINE FEMALE: URINE, ENDOCERVICAL, VAGINAL	Xpect CT/NG Vaginal / Endocervical Specimen Collection Kit – see detailed procedures
Chlamydia trachomatis, CULTURE	MISLCL, LabCorp 008565	Conjunctiva, cervix, posterior nasopharynx, throat, rectum, urethra	Purple cap UTM-RT with NP swab or COPAN traditional fiber for other source swabs
Chlamydia pneumoniae, PCR	MISLCL, LabCorp 138263	Throat or nasopharyngeal (NP) swab; bronchial washings; bronchoalveolar lavage (BAL); NP wash or aspirate	Purple cap UTM-RT with NP swab or COPAN traditional fiber for throat swab; or sterile container (for fluids)

Note: If Chlamydia results are for legal purposes, a culture should be performed.

SPECIMEN COLLECTION PROCEDURES ARE ON THE PAGES THAT FOLLOW

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CHLAMYDIA TRACHOMATIS PCR BY GENEXPERT

(Female: Endocervical and vaginal specimens)

COLLECTION PROCEDURE FOR ENDOCERVICAL/VAGINAL *SPECIMENS*

1. The Xpect CT/NG Vaginal/Endocervical specimen Collection Kit is the only device that can be used to collect female endocervical /vaginal swab specimens for PCR testing on the Cepheid GeneXpert instrument.

2. The large swab is for removing excess mucus from the cervix and surrounding area. Remove excess mucus from the cervix and surrounding area, and then discard swab.

3. Insert the smaller swab into the endocervical canal, rotate the swab clockwise for 10-30 seconds in the endocervical canal, and withdraw the swab carefully.

4. Loosen cap from the transport tube. Immediately place specimen collection swab into the transport reagent tube. Break swab at score line against the side of the tube. Discard top portion of the swab shaft.

5. Make sure the cap is tightly secured to the tube.

6. Label the tube with patient information and date/time collected.

7. Store and transport to the laboratory at 2-30°C within 5 days.

Note: If the large swab is left in the transport tube rather than the smaller swab, or if there is no swab in the transport tube, the specimen is unacceptable for testing and the floor will be notified to recollect.

Chlamydia trachomatis and Neisseria gonorrhoeae PCR tests will be run on endocervical/vaginal swabs. Two separate collection swabs are not required.

CHLAMYDIA TRACHOMATIS PCR BY GENEXPERT

(Male and Female: Urine Specimens)

COLLECTION PROCEDURE FOR <u>MALE OR FEMALE URINE SPECIMENS</u>

1. Use the BD Vacutainer Urine Complete Cup Kit to collect urine. The yellow stoppered tube contains no preservatives, and the vacuum draws 8 mLs of urine into the tube. The specimen volume required for the CHLAMYDIA TRACHOMATIS PCR BY GENEXPERT test is 7 mLs. If other urine tests are required, a separate collection/tube will have to be sent for testing. If less than 7 mLs of urine are received, the floor will be notified, and the test credited.

2. Label the tube with patient information and date/time collected.

3. Store and transport to the laboratory at 2-30˚C within 3 days.

Note: Testing for both Chlamydia trachomatis and Neisseria gonorrhoeae can be performed on 7 mLs of urine. Two separate tubes are not required.

Chlamydia trachomatis, CULTURE

(Conjunctiva, cervix, posterior nasopharynx, throat, rectum, urethra)

Purple cap UTM-RT with NP swab or COPAN traditional fiber for other source swabs

COLLECTION PROCEDURE FOR CONJUNCTIVAL SPECIMENS

1. UTM-RT can be stored at room or refrigerated temperature prior to specimen collection.
2. Remove mucus and exudate. Use a swab and firm pressure to scrape away epithelial cells from upper and lower lids. If samples are taken from both, swab the less affected eye first to avoid further contamination of that eye.
3. Place swab in medium, breaking off shaft in tube.
4. Transport to Laboratory at room temperature when dry for up to 24 hours or refrigerate.

COLLECTION PROCEDURE FOR CERVICAL SPECIMENS

1. UTM-RT can be stored at room or refrigerated temperature prior to specimen collection.
2. Remove mucus/pus with a swab, discard, and use firm and rotating pressure to obtain specimen with another swab. May be combined with a urethral swab into same transport medium. This combination of cervical and urethral method is highly recommended.
3. Place swab in medium, breaking off shaft in tube.
4. Transport to Laboratory at room temperature when dry for up to 24 hours or refrigerate.

COLLECTION PROCEDURE FOR POSTERIOR NASOPHARYNX OR THROAT SPECIMENS

1. UTM-RT can be stored at room or refrigerated temperature prior to specimen collection.
2. Collect epithelial cells by using a swab.
3. Place swab in medium, breaking off shaft in tube.
4. Transport to Laboratory at room temperature when dry for up to 24 hours or refrigerate.

COLLECTION PROCEDURE FOR RECTAL SPECIMENS

1. UTM-RT can be stored at room or refrigerated temperature prior to specimen collection.
2. Sample anal crypts with a swab. Avoid contamination with fecal material.
3. Place swab in medium, breaking off shaft in tube.
4. Transport to Laboratory at room temperature when dry for up to 24 hours or refrigerate.

COLLECTION PROCEDURE FOR URETHRA SPECIMENS

1. UTM-RT can be stored at room or refrigerated temperature prior to specimen collection.
2. Patient should not urinate within one hour prior to specimen collection. The swab should be inserted 2 cm into the urethra. Use firm pressure to scrape cells from the mucosal surface. If possible, repeat with second swab.
3. Place swab in medium, breaking off shaft in tube.
4. Transport to Laboratory at room temperature when dry for up to 24 hours or refrigerate.

CHLAMYDIA PNEUMONIAE, PCR

(*Throat or nasopharyngeal (NP) swab; bronchial washings; bronchoalveolar lavage (BAL); NP wash or aspirate****)***

Purple cap UTM-RT with NP swab or COPAN traditional fiber for throat swab; or sterile container (for fluids)

Throat swabs and bronchial lavage fluid specimens must be placed in UTM-RT with purple cap and transported immediately to the laboratory.

For throat swab, place throat swab in tube containing universal transport media (UTM) and break off shaft in tube. Replace cap securely and send to laboratory immediately. Minimum sample: 1 swab.

For bronchial lavage fluid (BAL), bronchial washings, or NP wash/aspirate, place fluid in sterile container. Minimum sample: 1 mL.

Note: Volume less than 1 mL does not allow for repeat testing. Swab, bronchial wash, or BAL is stable at room temperature, refrigerated, or frozen for 7 days.

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APPENDIX G

COLLECTION PROCEDURES FOR NEISSERIA GONORRHOEAE

NEISSERIA GONORRHOEAE PCR BY GENEXPERT

(Female: Endocervical and vaginal specimens)

COLLECTION PROCEDURE FOR* ENDOCERVICAL/VAGINAL *SPECIMENS

1. The Xpect CT/NG Vaginal/Endocervical specimen Collection Kit is the only device that can be used to collect female endocervical /vaginal swab specimens for pcr testing on the Cepheid GeneXpert instrument.

2. The large swab is for removing excess mucus from the cervix and surrounding area. Remove excess mucus from the cervix and surrounding area, and then discard swab.

3. Insert the smaller swab into the endocervical canal, rotate the swab clockwise for 10-30 seconds in the endocervical canal, and withdraw the swab carefully.

4. Loosen cap from the transport tube. Immediately place specimen collection swab into the transport reagent tube. Break swab at score line against the side of the tube. Discard top portion of the swab shaft.

5. Make sure the cap is tightly secured to the tube.

6. Label the tube with patient information and date/time collected.

7. Store and transport to the laboratory at 2-30°C within 5 days.

Note: If the large swab is left in the transport tube rather than the smaller swab, or if there is no swab in the transport tube, the specimen is unacceptable for testing and the floor will be notified to recollect.

Chlamydia trachomatis and Neisseria gonorrhoeae PCR tests will be run on endocervical/vaginal swabs. Two separate collection swabs are not required.

If Neisseria gonorrhoeae results are for legal purposes, a culture should be performed.

NEISSERIA GONORRHOEAE PCR BY GENEXPERT

(Male and Female: Urine Specimens)

COLLECTION PROCEDURE FOR MALE OR FEMALE URINE SPECIMENS

1. Use the BD Vacutainer Urine Complete Cup Kit to collect urine. The yellow stoppered tube contains no preservatives, and the vacuum draws 8 mLs of urine into the tube. The urine required for the GC PCR BY GENEXPERT test is 7 mLs. If there are other urine tests that are required, a separate collection will be needed for any additional tests.

2. Label the tube with patient information and date/time collected.

3. Store and transport to the laboratory at 2-30° C within 3 days.

Note: Testing for both Neisseria gonorrhoeae and Chlamydia can be performed on 7 mLs of urine. Two separate tubes are not required.

If Neisseria gonorrhoeae results are for legal purposes, a culture should be performed.

NEISSERIA GONORRHOEAE CULTURE

Media Needed:

Thayer-Martin Agar Plate

Media Storage:

Obtain media from Microbiology in the Clinical Laboratory.

Media should be stored at 2-8°C. Plates that are stored at room temperature in the examination rooms are only good for 24 hours. Discard all media left out at room temperature for more than 24 hours.

IF MEDIA IS STORED IN THE REFRIGERATOR, ALLOW MEDIA TO WARM TO ROOM TEMPERATURE BEFORE USING.

PRODEDURE:

1. After specimen has been obtained, inoculate media surface, being careful not to cut agar surface.

2. Tape plate shut.

3. Send specimen to the Clinical Laboratory-Microbiology within 2 hours of collection. If unable to deliver within 2 hours, collect on swab and submit swab for testing.

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APPENDIX H

TALLAHASSEE MEMORIAL HEALTHCARE
CLINICAL LABORATORY
MATERNAL SCREEN - TRISCREEN

Please complete the following information and attach to the test request.

PATIENT NAME:_____

PHYSICIAN:_____

1. AFPDIA - Is patient an insulin dependent diabetic? (Yes or No) _____
2. AFPDOB – Patient date of birth (MM/DD/YYYY)_____
3. AFPDR - Date of specimen collection (MM/DD/YYYY)_____
4. AFPEDD - Estimated date of delivery (MM/DD/YYYY)_____
5. AFPNTH - Is there a history of neural tube defects? (Yes or No) _____
6. AFPNUM - Number of fetuses (1,2,3 etc) _____
7. AFPRAC - Please circle patients race. BLACK (BLK) WHITE ASIAN OTHER (OTH)
8. AFPPRE - Is this a repeat specimen? (Yes or No)_____
9. AFPUS - Please circle how the estimated date of delivery was determined:

    LMP2 - Determined by last menstrual period

    ULS2 - Determined by Ultrasound

    PELEX - Determined by Pelvic Exam

10. AFPWGT - Patients weight _____

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APPENDIX I

PATIENT PREPARATION
for
Glucose Absorption Tests; Fecal Occult Blood

GLUCOSE TOLERANCE TEST

Patient Dietary Instructions: The patient must be fasting 8 hours prior to beginning the test. This includes any food, candy, gum, or fluids, except water.

During the test the patient must remain fasting, refrain from smoking, and drink only water.

The patient should remain in his/her room until the test is completed so that blood samples can be drawn at the specified time.

To assure accurate results, specimens for glucose tolerance tests should be collected in lithium heparin (light green) tubes.

FECES OCCULT BLOOD

Dietary Instructions: In general, patients should be carefully instructed to not ingest foods and vitamins, which can cause false-positive or false-negative test results, for at least 72 hours before and through the test period.

Substances which can cause false-positive results: red meat (beef, lamb, and liver); aspirin (greater than 325 mg per day) and other non-steroidal anti-inflammatory drugs such as ibuprofen, indomethacin and naproxen (avoid 7 days prior to test, minimally); corticosteroids, phenylbutazone, reserpine, anticoagulants, antimetabolites, and cancer chemotherapeutic drugs; alcohol in excess; the application of antiseptic preparations containing iodine (povidone/iodine mixture).

Substances which can cause false-negative results: Ascorbic acid (vitamin C) in excess of 250 mg per day; excessive amounts of vitamin C enriched foods, citrus fruits and juices; iron supplements which contain quantities of vitamin C in excess of 250 mg per day.

Dietary iron supplements **will not** produce false-positive test results with Hemoccult SENSA tests. Acetaminophen is not expected to affect the results.

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APPENDIX J

REFERENCE RANGES and CRITICAL VALUES

CHEMISTRY PANEL ANALYTES

ANALYTE	REFERENCE RANGE	CRITICAL VALUES
SODIUM	136 -144 mEq/L	<120 mEq/L and > 160 mEq/L
POTASSIUM	3 months of age or greater: 3.6-5.1 mEq/L 15 days to 3 months: 4.0-6.2 mEq/L 3 days to 14 days: 4.0-6.4 mEq/L Newborn to 2 days of age: 4.7-7.7 mEq/L	3 days of age or greater: <2.5 and >6.5 mEg/L Less than 3 days of age: <2.5 and >7.7 mEg/L
CHLORIDE	101 - 111 mEq/L	< 80 mEq/L and > 125 mEq/L
CARBON DIOXIDE	22 - 32 mEq/L	<10 mEq/L and > 40 mEq/L
ANION GAP	10-20 mEq/L	<0 and >25 mEq/L
BUN	8 - 20 mg/dL	
CREATININE	Female, 10 years of age or greater: 0.6-1.0 mg/dL Male, 10 years of age or greater: 0.6-1.1 mg/dL Male and female, less than 10 years of age: 0.2-1.0 mg/dL	
GLUCOSE	70 - 99 mg/dL	< 40 mg/dL and > 500 mg/dL
BUN/CREATININE RATIO	5 – 24 mg/dL	
OSMOLALITY (calculated)	280 - 290 mOsm/kg	<250 mOsm/kg and > 320 mOsm/kg
CALCIUM	1 year of age or greater: 8.2 - 10.0 mg/dL	< 6.0 mg/dL and > 14.0 mg/dL
TOTAL PROTEIN	6.5 – 8.1 g/dL	
ALBUMIN	3.5 - 4.8 g/dL	
TOTAL BILIRUBIN	1 month of age or greater: 0.0-2.0 mg/dL Less than 1 month of age: 0.0-15.0 mg/dL	> 15 mg/dL
CONJUGATED (DIRECT) BILIRUBIN	0.1 - 0.5 mg/dL	
UNCONJUGATED (INDIRECT) BILIRUBIN	1 month of age or greater: 0-1.5 mg/dL Less than one month of age: 0.0-15.0 mg/dL	
SGOT (AST)	16 years of age or greater: 0-41 U/L	
ALK PHOS	18 years of age or greater: 32 - 91 U/L	
SGPT (ALT)	Females: 0-54 U/L Males: 0-63 U/L	
AMYLASE	0-100 U/L	
ALCOHOL, ETHYL	Less than 10 mg/dL	Greater than 350 mg/dL
LACTATE/LACTIC ACID	Less than 2.1 mmol/L	Greater than or equal to 6.0 mmol/L

ADA GLUCOSE TOLERANCE GUIDELINES FOR GESTATIONAL DIABETES ARE AS FOLLOWS:

FASTING BLOOD GLUCOSE: LESS THAN 95 MG/DL.
1 HOUR BLOOD GLUCOSE: LESS THAN 180 MG/DL.
2 HOUR BLOOD GLUCOSE: LESS THAN 155 MG/DL.
3 HOUR BLOOD GLUCOSE: LESS THAN 140 MG/DL.

MODIFIED OSULLIVAN IS ABNORMAL IF THE 1 HOUR GLUCOSE LEVEL IS GREATER THAN 140 MG/DL.

CKMB and TNI REFERENCE RANGES and/or INTERPRETIVE CRITERIA

Assay	Units of Measure	Reference Range
Total CPK	U/L	Female: 0-234 ; Male: 0-397
CKMB	ng/mL	0.6-6.3
CKMB INTERPRETATION CRITERIA		POSITIVE: MB more than 4% of total and > 25 ng/mL TRACE: MB more than 4% of total and 10-25 ng/mL NEGATIVE: MB less than 4% of total or less than 10 ng/mL
TROPONIN I	ng/L	< 50 ng/L

HGBA1C AND LIPID PANEL REFERENCE RANGES

Assay	Units of Measure	Reference Range
HGBA1C	%	4.5-6.2
TRIGLYCERIDE	mg/dL	Less than 150 Normal 150-199 Borderline High 200-499 High Greater than 500 Very High
CHOLESTEROL	mg/dL	Less than 200 Desirable 200-239 Borderline High Greater than 240 High
HDL	mg/dL	Less than 40 Low Greater than 60 High
LDL	mg/dL	Less than 100 Optimal 100-129 Near or above Optimal 130-159 Borderline High 160-189 High Greater than 190 Very High
VLDL	mg/dL	0-77
TOTAL CHOL/HDL RATIO		Total/ HDL (Male) Total/HDL (female) Risk 3.43 3.27 Half Average 4.97 4.44 Average 9.55 7.05 2 times Average

Last Revision Date: 08/13/2009, ds 05/30/2016, ds; 07/19/2022 av; 11/9/2022 av

Last Review Date: *08/25/2011, kc, 08/21/2013 kc, 05/19/2015 prc 05/30,/2016, ds, 7.1.2018 ds, 07/09/2020 sc/prc, 04/26/2021 le/pc; 07/19/2022 av; 11/9/2022 av*

APPENDIX K

REFERENCE RANGES and CRITICAL VALUES

ARTERIAL BLOOD GASES

ANALYTE	REFERENCE RANGE	CRITICAL VALUE
pH	Arterial: 7.35 - 7.45 Capillary: 7.25 - 7.35	age > 1 month: < 7.20 or > 7.60 Neonate: < 7.25 or > 7.55 Capillary: < 7.10 or > 7.50
pCO2	35 mmHg - 45 mmHg	Neonate: < 25 mmHg or > 65 mmHg
pO2	Arterial: 80 mmHg - 90 mmHg Capillary: 45 mmHg - 55 mmHg	age > 1 month: < 50 mmHg Neonate: < 40 mmHg
HCO3	22 mEq/L - 26 mEq/L	
CO2	21 mEq/L - 30 mEq/L	<10 or >40 mEq/L
Oxy Hemoglobin	Age > 1 month: 90.0 – 95.0% Neonate: 40.0 -90.0%	
Base Excess	(-2) – (+3) mEq/L	
O2 Saturation	95.0 - 98.0 %	
Potassium (Performed on ABG analyzer)	3 months of age or greater: 3.6-5.1 mEq/L 15 days to 3 months of age: 4.0-6.2 mEq/L 3 days to 14 days of age: 4.0-6.4 mEq/L Newborn to 3 days of age: 4.7-7.7 mEq/L	3 days of age or greater: <2.5 or >6.5 mEq/L Less than 3 days of age: <2.5 or >7.7 mEq/L
MET	0 - 1.5%	0 - 20.0%
CO	0 - 5.0%	0 – 15.0%
CO2 (Total)	35 – 45 mmHg	Neonate: 25.0 – 65.0 mmHg

VENOUS BLOOD GASES

ANALYTE	REFERENCE RANGE	CRITICAL VALUE
pH	7.310 – 7.410	
pCO2	41 mmHg - 51 mmHg	
pO2	30 mmHg - 40 mmHg	
HCO3	23 mEq/L - 28 mEq/L	
CO2	22 mEq/L - 32 mEq/L	
Oxy Hemoglobin	40.0 – 90.0%	
Base Excess	(-2) – (+3) mEq/L	
O2 Saturation	60.0 - 85.0%	

ANALYTE	REFERENCE RANGE	CRITICAL VALUE
Potassium (Performed on ABG analyzer)	3 months of age or greater: 3.6-5.1 mEq/L 15 days to 3 months of age: 4.0-6.2 mEq/L 3 days to 14 days of age: 4.0-6.4 mEq/L Newborn to 3 days of age: 4.7-7.7 mEq/L	3 days of age or greater: <2.5 or >6.5 mEq/L Less than 3 days of age: <2.5 or >7.7 mEq/L
CO2 (Total)	41 – 51 mmHg	

CAPILLARY BLOOD GASES

ANALYTE	REFERENCE RANGE	CRITICAL VALUE
pH	7.250 - 7.350	7.100 - 7.500
pCO2	35.0 – 45.0 mmHg	
pO2	45.0 – 55.0 mmHg	
CO2	21.0 – 30.0 mEq/L	10.0 – 40.0 mEq/L
HCO3	22.0 – 26.0 mEq/L	10.0 – 40.0 mEq/L
Base Excess	(-2) – (+3) mEq/L	
CO2 (Total)	35.0 – 45.0 mmHg	

ARTERIAL CORD BLOOD GASES

ANALYTE	REFERENCE RANGE	CRITICAL VALUE
pH	7.150 - 7.430	
pCO2	31.1 - 74.3 mmHg	
pO2	10.0 - 33.8 mmHg	
CO2	38.6 - 45.4 mEq/L	
HCO3	13.3 - 27.5 mEq/L	
Base Excess	NONE	
CO2 (Total)	31.1 - 74.3 mmHg	

VENOUS CORD BLOOD GASES

ANALYTE	REFERENCE RANGE	CRITICAL VALUE
pH	7.260 - 7.490	
pCO2	23.2 - 51.7 mmHg	
pO2	15.4-48.2 mmHg	
CO2	40.9-46.5 mEq/L	
HCO3	16.3-24.9 mEq/L	
Base Excess	NONE	
CO2 (Total)	23.2 - 51.7	

MISCELLANEOUS BLOOD GASES

ANALYTE	REFERENCE RANGE	CRITICAL VALUE
ICAL	4.5 - 5.4 mg/dL	
Hematocrit (HCT) (%)	18Y F 37.0 - 47.0 M 42.0 – 52.0 10Y F 35.0 – 45.0 M 36.0 – 47.0 2Y 33.0 – 43.0 6M 33.0 – 39.0 3M 29.0 – 41.0 2M 28.0 – 42.0 1M 31.0 – 55.0 14D 39.0 – 63.0 7D 42.0 – 66.0 0D 44.0 – 70.0	7D 15.0 - 65.0 % 0D 15.0 - 70.0 %
Hemoglobin (HGB) (g/dL)	18Y F 12.5-16.0 M 13.5-18.0 10Y F 12.0-15.0 M 12.5-16.1 2Y 11.5-14.5 6M 10.5-13.5 3M 9.5-13.5 2M 9.0-14.0 1M 10.0-18.0 8D 12.5-20.5 4D 13.5-21.5 0D 14.5-22.5	6M 6.0 - 21.0 g/dL 8D 8.0 - 21.0 g/dL 4D 9.0 - 21.5 g/dL 0D 9.0 - 22.5 g/dL

Last Revision Date: 07/21/2016 ds; 07/19/2022 av; 11/9/2022 av

Last Review Date: 07/21/2016, ds, 07/27/2018 prc, *07/09/2020 sc/prc; 07/19/2022 av; 11/9/2022 av*

APPENDIX L

HEMATOLOGY REFERENCE RANGES and CRITICAL VALUES

HEMOGRAM

PARAMETER	AGE	NORMAL REFERENCE RANGE		CRITICAL VALUES
		MALE	FEMALE	
WBC	10 years and older	4.0 -10.5 K/mm^3	4.0 - 10.5 K/mm^3	All ages: < 1.0 K/mm^3 and > 50 K/mm^3
	2 - 9 years	4.0 - 12.0 K/mm^3	4.0 - 12.0 K/mm^3	
	1- 23 months	6.0 - 14.0 K/mm^3	6.0 - 14.0 K/mm^3	
	7 days to 1 month	5.0 - 20.0 K/mm^3	5.0 - 20.0 K/mm^3	
	2 - 6 days	5.0 - 21.0 K/mm^3	5.0 - 21.0 K/mm^3	
	0 - 1 day	9.4 - 38.0 K/mm^3	9.4 - 38.0 K/mm^3	
RBC	18 years and older	4.7 - 6.1 M/mm^3	4.2 - 5.4 M/mm^3	Units: M/mm^3
	10 - 17 years	4.2 - 5.6 M/mm^3	4.1 - 5.3 M/mm^3	
	2 - 9 years	4.0 - 5.3 M/mm^3	4.0 - 5.3 M/mm^3	
	1 - 23 months	3.8 - 5.4 M/mm^3	3.8 - 5.4 M/mm^3	
	0 - 1 month	4.1 - 6.7 M/mm^3	4.1 - 6.7 M/mm^3	
HGB	18 years and older	13.5 - 18.0 g/dL	12.5 - 16.0 g/dL	Greater than 6 months < 6.0 g/dL or > 21.0 g/dL Age 8 days – 6 months: < 8.0 g/dL or > 21.0 g/dL Age 4-7 days: < 9.0 g/dL or >21.5 g/dL Newborn to 3 days: < 9.0 g/dL or > 22.5 g/dL
	10 - 17 years	12.5 - 16.1 g/dL	12.0 - 15.0 g/dL	
	2 - 9 years	11.5 - 14.5 g/dL	11.5 - 14.5 g/dL	
	6 - 23 months	10.5 - 13.5 g/dL	10.5 - 13.5 g/dL	
	3 - 5 months	9.5 - 13.5 g/dL	9.5 - 13.5 g/dL	
	2 months	9.0 - 14.0 g/dL	9.0 - 14.0 g/dL	
	1 month	10.0 - 18.0 g/dL	10.0 - 18.0 g/dL	
	8 days to 1 month	12.5 - 20.5 g/dL	12.5 - 20.5 g/dL	
	4 - 8 days	13.5 - 21.5 g/dL	13.5 - 21.5 g/dL	
	0 - 3 days	14.5 - 22.5 g/dL	14.5 - 22.5 g/dL	
HEMATOCRIT	18 years and greater	42 - 52 %	37 - 47 %	Age 8 days and greater: < 15% or > 65% Newborn to 7 days: < 15% or > 70%
	10 - 17 years	36 - 47 %	35 - 45 %	
	2 - 9 years	33 - 43 %	33 - 43 %	
	6 - 23 months	33 - 39 %	33 - 39 %	
	3 - 5 months	29 - 41 %	29 - 41 %	
	2 months	28 - 42 %	28 - 42 %	
	1 month	31 - 55 %	31 - 55 %	
	14 days to 1 month	39 - 63 %	39 - 63 %	
	7 - 13 days	42 - 66 %	42 - 66 %	
	0 - 6 days	44 - 70 %	44 - 70 %	
MCV	18 years and greater	78 - 100 μ^3	78 - 100 μ^3	Units: μ^3 or fL
	10 - 17 years	78 - 95 μ^3	78 - 95 μ^3	
	2 - 9 years	76 - 90 μ^3	76 - 90 μ^3	
	6 - 23 months	70 - 86 μ^3	70 - 86 μ^3	
	3 - 5 months	74 - 108 μ^3	74 - 108 μ^3	
	1 - 2 months	77 - 115 μ^3	77 - 115 μ^3	
	4 days to 1 month	88 - 116 μ^3	88 - 116 μ^3	
	0 - 3 days	95 - 121 μ^3	95 - 121 μ^3	
MCH	18 years and greater	26 - 34 µµg	26 - 34 µµg	Units: µµg or pg
	12 - 17 years	25 - 35 µµg	25 - 35 µµg	
	6 - 11 years	25 - 33 µµg	25 - 33 µµg	
	2 - 5 years	24 - 30 µµg	24 - 30 µµg	
	6 - 23 months	23 - 31 µµg	23 - 31 µµg	
	1 - 5 months	25 - 35 µµg	25 - 35 µµg	
	4 days to 1 month	28 - 40 µµg	28 - 40 µµg	
	0 - 3 day**s**	31 - 37 µµg	31 - 37 µµg	
MCHC	2 years and greater	31 - 37 %	31 - 37 %	Units: % or g/dL
	2 - 23 months	30 - 36 %	30 - 36 %	
	0 - 1 month	29 - 37 %	29 - 37 %	
PLT	all ages	140 - 440 K/mm^3	140 - 440 K/mm^3	Less than 30 K/mm^3
RDW	10 years and greater	11.5 - 14 %	11.5 - 14 %	Units: %
	2 - 9 years	11.5 - 15 %	11.5 - 15 %	
	1 - 23 months	11.5 - 16 %	11.5 - 16 %	
	Up to 1 month of age	13 - 18 %	13 - 18 %	

K = thousand; M = million

RETICULOCYTE COUNT

	Percent	Absolute Count (K/mm3)
Automated Reticulocyte Count	0.3 – 2.8 %	12-128 K/mm3

K = thousand; M= million

DIFFERENTIAL – Cell Percents

CELL TYPE	AGE	REFERENCE RANGE (%)
Segmented Neutrophils (SEGS)	12 years and greater	44-80 %
	Less than 12 years	28-68 %
Lymphocytes (LYMPHS)	12 years and greater	13-43 %
	Less than 12 years	20-59 %
Monocytes (MONOS)	all	2-11 %
Eosinophils (EOS)	12 years and greater	0-8 %
	Less than 12 years	1-11 %
Basophils (BASOS)	12 years and greater	0-2 %
	Less than 12 years	0-3 %
Stabs (BANDS)	all	0-5 %
Metamyelocytes (METAS)	all	0 %
Myelocytes (MYELOS)	all	0 %
Promyelocytes (PROS)	all	0 %
Blasts	all	0 %

DIFFERENTIAL – Absolute Counts

CELL TYPE	AGE	REFERENCE RANGE (K/mm3)
Segmented Neutrophils (SEGS)	10 years and greater	1.8-7.8
	1-9 years	1.5- 8.5
	1-11 months	1.0-9.0
	14 – 31 days	1.0-9.5
	7-13 days	1.5-10.0
	newborn – 6 days	6.0- 26.0
Lymphocytes (LYMPHS)	21 years and greater	1.0-4.8
	16-20 years	1.2-5.2
	6-15 years	1.5-6.8
	4-5 years	2.0-8.0
	2-3 years	3.0-9.5
	1 year	4.0-10.5
	6-11 months	4.0-13.5
	1-5 months	2.5-16.5
	7-31 days	2.0-17.0
	newborn-6 days	2.0-11.0
Monocytes (MONOS)	6 years and greater	0.0-0.8
	6 months – 5 years	0.1-1.2
	14 days – 5 months	0.2-2.4
	7-13 days	0.3-2.7
	newborn – 6 days	0.4-3.1
Eosinophils (EOS)	all	0.0-0.5
Basophils (BASO)	all	0.0-0.2

K = thousand

Last Revision Date: 08/13/09 ds; 5/30/2016 ds; 07/20/2022 av; 11/9/2022 av
Last Review Date*: 08/25/11, kc, 08/21/2013 kc, 05/19/2015, prc 05/30/2016, ds, 7.1.2018 ds, 07/09/2020 sc/prc; 07/20/2022 av; 11/9/2022 av*

APPENDIX M

ORDER CATALOGUE

INDIVIDUAL INFORMATION SHEETS

The individual information sheets are arranged in alphabetical order. Test names beginning with numbers are listed first. If you do not find the test you are looking for you may:

(1) Refer to the Alternate Test Name List. It will refer you to the appropriate individual information sheet.

(2) If the test name is not referenced in the Alternate Test Name List, please contact accessioning (431-5805) for assistance.

The following is a guide to what is included under each category listing:

Test Name	Primary name of test.
Alternate Name:	Alternate name(s) for the primary test name.
CPT Code:	Current Procedural Terminology Code.
Lab Order Code:	Laboratory Test Code.
Specimen Type Required:	Type of specimen to collect.
Container or Tube Type:	Sample container or blood tube type to use.
Nursing: Volume to Draw:	Volume of blood to draw, in the appropriate tube.
Nursing: Collection Requirements:	Specific collection, transport, and storage requirements.
Nursing: Patient Preparation:	Any patient preparation required, prior to sample collection
Lab: Normal Testing Volume:	The normal volume (or weight) of sample required for testing.
Lab: Min. Testing:	The minimum volume (or weight) of sample required for testing.
Unacceptable Specimen:	Any reason(s) why a specimen would be unacceptable for testing.
Other:	Miscellaneous information specific for the test.
Analysis Method:	Type of laboratory test methodology performed.
Reference Range:	The reference range for the test result. Reference ranges for tests not performed at TMH will be found on the reference lab report (i.e. See report).
Critical Value:	Test result value at which immediate clinical action may be required.
Schedule Setup:	The day(s) and time(s) the test is routinely performed.
Schedule Report:	The turn-around time (TAT) or range of days required for result reporting.
Available STAT:	Indicates if the test is available STAT.
Lab Performing:	The TMH laboratory and/or section performing the testing.

Last revision: 06/21/2016 prc; 07/19/2022 av
Reviewed*: 06/21/2016 prc, 07/27/2018 prc, 07/09/2020 prc; 07/19/2022 av*

APPENDIX N

iStat POC Analyzer Expected Values, Critical Values, Reportable Ranges

TEST	UNITS	Expected Values ARTERIAL	Expected Values VENOUS	Critical Values	Reportable Range
pH		7.35 – 7.45	7.31 – 7.41	<7.20 or >7.60	7.0 – 7.7
pCO2	mmHg	35 - 45	41 - 51	<25 or >65	15 - 130
pO2	mmHg	80 - 90	30 - 40	<50	15 - 800
TCO2	mEq/L	21-30	22-32	<10 or >40	5 – 50
HCO3	mEq/L	22 – 26	23 - 28	<10 or >40	1.0 – 85.0
BE	mEq/L	(-2) – (+3)	(-2) – (+3)		(-30) – (+30)
sO2	%	95 - 98	60 - 85		0 - 100
Sodium (Na)	mEq/L	136-144	136-144	<120 or >160	100 – 180
Potassium (K)	mEq/L	3.6-5.1	3.6-5.1	<2.5 or >6.5	2.0 – 9.0
Hematocrit (Hct)	%PCV	Male: 42-52 Female: 37-47	Male: 42-52 Female: 37-47	<15 or >65	15 – 75
Hemoglobin (Hb)	g/dL	Male: 13.5-18.0 Female: 12.5-16.0	Male: 13.5-18.0 Female: 12.5-16.0	<6 or >21.0	5.1 – 25.5
Ionized Calcium (iCa)	mg/dL	4.5 – 5.4	4.5 – 5.4		4.5 - 45
Glucose	mg/dL	70 - 99	70 - 99	<40 or >500	20 - 700
BUN	mg/dL	8 – 20	8 – 20		3 – 140
Creatinine	mg/dL	Male: 0.7 – 1.3 Female: 0.5 – 1.1	Male: 0.7 – 1.3 Female: 0.5 – 1.1		0.02 – 20
Lactate	mmol/L	0.36-1.25	0.90-1.70		0.30 - 20.0
Chloride	mEq/L	101 - 111	101 – 111	<80 or >125	65 - 140
ACT	Seconds	74 – 137	74 – 137		50 - 1000
PT/INR	INR	Therapeutic: 2.0-3.0 Mechanical heart valves: 2.5-3.5	Therapeutic: 2.0-3.0 Mechanical heart valves: 2.5-3.5	>4.5	0.9 – 8.0
Anion Gap	mEq/L	10 – 20	10 – 20	<0 or >25	(-10) – (+99)

Last revision 05/21/2015 ds; 07/20/2022 av; 11/08/2022 AV
Reviewed 05/21/2016 ds, 06/21/2016 prc, 07/27/2018 prc, *07/09/2020 sc/prc; 07/20/2022 av; 11/08/2022 AV*

APPENDIX O

COLON BIOPSY FROM IMMUNOSUPPRESSED PATIENTS

The Endoscopy Unit will deliver the following specimens to the Laboratory:

1. Specimen in 10% formalin for routine histology
2. Specimen in Trumps Solution for possible Electron Microscopy
3. Fresh specimen for AFB smear and culture and for CMV and Adenovirus Culture

Last Revision Date: 05/31/06, st; 07/19/2022 av

Last Review Date: 08/26/08, rt; 08/13/10, rt; 08/24/11, rt; 08/28/13 rt; 5/14/15 rt, 7.27.2018 rt, 07/09/20 pk/prc; 07/19/2022 av

APPENDIX P

HISTOLOGY AND CYTOLOGY SPECIMEN HANDLING

Extreme care should be taken when handling tissue specimens. The specimen is usually necessary for diagnosis and often can not be obtained again.

If a frozen section is needed on a specimen, contact the Histology Department at ext. 2775. After hours, call the Pathology Associates answering service at 850-562-7872.

Preservative is never used with specimens for Frozen sections or Fresh examination.

Any questions regarding specimens for histology or cytology should be addressed to the Histology Department at ext. 2775. After hours call the Main Laboratory and ask for a Laboratory Supervisor.

HISTOLOGY

Supplies

1. Preservative (tissue specimens only) - 10% neutral buffered formalin. When preservative is used the entire specimen should be completely covered with the formalin.

2. Specimen container - depending on specimen size. Pre-filled formalin containers are available from Central Supply.

3. Labels - must have patient's first and last name, Date of birth, Hospital Medical Record Number, Hospital Account Number, date and time of collection and specimen type.

4. Pathology request slips/Requisitions, MUST be filled out COMPLETELY, including Pre-Op information, specimen and body site, clinical history, operation performed, Post-Op diagnosis, previous surgery, surgeon, and any special instructions.

5. The SURGICAL PATHOLOGY REQUISITION is a two-part form; top page is white; second page is yellow. Form # 223102, Lawson #13480

SPECIMEN REQUIREMENTS FOR CYTOGENETICS

General

1. Pathology request slips/Requisitions, MUST be filled out COMPLETELY, including Pre-Op information, specimen and body site, clinical history, operation performed, Post-Op diagnosis, previous surgery, surgeon, and any special instructions.

2. The specimen must be sent to the laboratory fresh (no preservative). Specimens should never be frozen.

3. The specimen must be sent to the laboratory immediately.

Amniotic Fluid

15-20 mL of sterile amniotic fluid is required. The first few mLs drawn should be discarded to reduce the chance of maternal cell contamination. Order any additional testing and complete the necessary requisition. If additional tests are required, please contact the laboratory for test-specific amniotic fluid volume requirements.

Peripheral Blood

Use a sodium-heparin tube (dark green) and mix well. **DO NOT USE EDTA, lithium, or ammonium-heparin.** Sample size: 2-5 ml for routine, family, and mosaicism studies, 5-10 ml is required for high-resolution chromosome analysis. If additional tests are required, please contact the laboratory for test-specific peripheral blood volume requirements.

In cases of fetal demise or stillbirth, blood (peripheral heart puncture, or cord blood) if time of death is 2 days or less. Aseptically draw into sodium heparin tube.

Tissue Requirements for Spontaneous Abortion or Fetal Demise

The samples must be taken before fixative (formalin) is added. Samples should never be frozen or placed on ice.

Fresh tissue must be placed in sterile cell culture media (RPMI) located in the laboratory/Histology Department. Fresh tissue should be brought immediately to the laboratory for tissue selection and placement in the transport media.

Products of Conception: 5 mm of placenta from near the umbilical cord insertion site containing chorionic villi or 1-2 cm. of skin if autopsy is not ordered. If autopsy is performed, chest wall cartilage, gonad, spleen, kidney, or other internal organs can be submitted in addition to placental tissue.

Please include the clinical information, approximate gestational age, and fetal gender, if known. If additional tests are required, please contact the laboratory for test-specific volume requirements.

Skin or Other Tissue from Children or Adults

1-2 mm full thickness skin punch biopsy. Send fresh to the laboratory for immediate placement in transport media (RPMI). If additional tests are required, please contact the laboratory for test-specific volume requirements.

Bone Marrow
1-3 mL sodium-heparin (dark green) only. Send specimen to laboratory immediately. If additional tests are required, please contact the laboratory for test-specific volume requirements.

Solid Tumors / Lymph Nodes

Send fresh solid tumor tissue or lymph node to the laboratory for immediate placement in transport media (RPMI). No minimum specimen size is requested, but submission of at least 1-3 mm is desirable and will increase the likelihood of obtaining a meaningful result. A completed Surgical Pathology Requisition must accompany the specimen. If additional tests are required, please contact the laboratory for test-specific volume requirements.

SPECIMEN REQUIREMENTS FOR FLOW CYTOMETRY

Peripheral Blood
5-10 mL Sodium Heparin tube (dark green) preferred. EDTA tube (lavender) is acceptable. Send specimen to the laboratory at room temperature. If additional tests are required, please contact the laboratory for test-specific peripheral blood volume requirements.

Bone Marrow Aspirate
1-2 mL bone marrow in Sodium Heparin tube (dark green) preferred. EDTA tube (lavender) is acceptable. Send specimen to the laboratory at room temperature. If additional tests are required, please contact the laboratory for test-specific bone marrow volume requirements.

Bone Marrow Core Biopsy
Bone marrow core biopsy specimens for flow cytometry must be sent fresh to the laboratory for immediate placement in transport media (RPMI). RPMI is kept in the refrigerator in the Histology Department of the Laboratory. Send specimens to the lab at room temperature. If additional tests are required, please contact the laboratory for test-specific bone marrow core biopsy volume requirements.

Solid Tumors / Lymph Nodes
Send fresh solid tumor tissue or lymph node to the laboratory for immediate placement in transport media (RPMI). No minimum specimen size is requested, but submission of at least 1-3 mm is desirable and will increase the likelihood of obtaining a meaningful result. A completed Surgical Pathology Requisition must accompany the specimen. If additional tests are required, please contact the laboratory for test-specific volume requirements.

CSF
1 mL or greater of CSF sent fresh to the Laboratory for immediate placement in transport media (RPMI). If additional tests are required, please contact the laboratory for test-specific CSF volume requirements.

TMH CYTOLOGY

GENERAL CYTOLOGY INFORMATION

Cytology Request forms – single page yellow form (REV 1/2015), Lawson # 68258

Federal regulations (CLIA '88) require that laboratory test request forms contain the following information upon receipt in the laboratory:

Patient name	Patient D.O.B.
Patient identification number	Date collected
Physician name	Specimen source
Sex	Basic clinical information (LMP, relevant history, diagnosis, symptoms, etc.)

Cytology specimens are received fresh unless otherwise directed.

RUSH cases should be clearly marked on the form.

Labeling Specimens

Specimens must be labeled with two identifiers (patient name and hospital FIN number), along with the specimen description. The hospital patient label is preferred. The label must be placed on the side of the container. Prepared slides may be labeled with the patient's name and FIN number. A completed cytology requisition must accompany the labeled specimen.

UNIDENTIFIED SPECIMENS CANNOT BE ACCEPTED.

Delivery to Laboratory

Cytology specimens are to be delivered to the accessioning area of the laboratory as soon as possible. If the accessioning area is closed, deliver to the front desk of the main laboratory. The clerk will route the specimens from that point.

If the specimen is a STAT, the floor should inform histology that the specimen is coming by calling 431-2775.

Specimens for Pneumocystis are not routinely rushed. If a report is desired the same day, the specimen must be in the lab as early as possible, no later than 1 pm., Monday through Friday.

Specimen Rejection

Specimens will be rejected by the laboratory when:

They are not properly identified.
Slides are received broken beyond repair.
Specimens are received from unauthorized sources, specimens collected on patients outside of TMH buildings.

Report Availability

Slides are diagnosed and signed out in the Pathology Department by a pathologist Monday through Friday, 8 a.m. to 5 p.m. Inquiries for results during these hours should be made to the surgical secretaries at 431-5888. The pathologist on call may be reached after hours, if necessary, through our answering service at 850-562-7872.

Proper Precautions for Handling Body Fluid Specimens

All laboratory specimens are considered to be hazardous. Gloves should be worn when handling all specimens. Use screw top containers. Wash hands immediately after handling.

Questions

Technical questions may be directed to the pathologist on duty at 431-5888. The pathologist may be reached after hours through our answering service, 850-562-7872.

CYTOLOGY SPECIMEN FIXATION

Proper fixation of cellular material is critical for an accurate diagnosis. When slides are made, they must be fixed immediately after the cellular material is spread on them. The fixative must be ready to use, and the slide must be placed immediately into 95% alcohol or CytoLyt (supplied by the Histology Dept, ext 12775). All specimens must be brought to the Pathology Department immediately.

Container and Fixative for Individual Cytology Preparations

Pap Smears:

Consulting physician will supply pap smear kit. If not available, please contact KWB Pathology Associates,
850-878-5143

Maturation Index:

Call Histology Lab prior to collection for instructions and supplies needed

Buccal and Direct Smears:

Call Histology Lab prior to collection for instructions and supplies needed

Breast Nipple Smears:

Call Histology Lab prior to collection for instructions and supplies needed

Breast Cyst Aspirate:

Smear made by physician.
Call Histology Lab prior to collection for instructions and supplies needed

Urine:

Plastic cup container

Sputum for Cytology:

Fresh specimen in plastic cup container

Sputum for PCP, Cytology:

Fresh specimen in plastic cup container.
Do not add any fixative.

Bronchial Washings:

Fresh specimen for Cytology. Separate fresh specimens must be submitted for Microbiology & Cytology PCP.
Plastic cup container
Equal volume of CytoLyt fixative

Brushings:

Smear made by physician.
Wire cut above brush. Submit to lab in container containing 10 ml of CytoLyt fixative.

Body Fluid: (pleural, peritoneal, pericardial, joint)
Plastic cup container (or larger)
Leave unfixed.
Heparin (optional) - 3 units per ml of fluid

Cerebrospinal Fluid: (CSF)
Tube or plastic cup container
Deliver immediately to lab without fixation.

Sputum for Routine Cytology
Plastic cup/container

Sputum for Pneumocystis:
Fresh sputum specimen must be submitted.
Plastic cup container

Fine Needle Aspiration:
Frosted end slides
95% alcohol, supplied by Histology Dept, ext 12775
Plastic slide holder or cardboard holder

Tzank Prep:
Smear made by physician.
Call Histology Lab prior to collection for instructions and supplies needed

Wang Needle Aspirate:
Plastic cup container with sterile saline
Deliver immediately to lab without fixation

PAP TEST COLLECTION

ThinPrep Pap Test (liquid-based technique)

Materials: Preservcyt vial
Endocervical brush and plastic cervical scraper

Collection instructions:

Collect endocervical specimen with endocervical brush and place into vial.
Collect ectocervical specimen with plastic scraper and place into vial.
Swish both devices ten times to assure that all cells are in the Preservcyt solution.
Discard brush and scraper.
Cap vial tightly.
Label vial with at least two patient identifiers.
Place into specimen bag.
Place completed yellow cytology requisition into pocket of specimen bag.
Send to Pathology Lab (Histology)

Pap tests are forwarded to KWB Pathology Associates for processing. Report(s) will be sent to the ordering physician by KWB Pathology Associates.

NIPPLE SECRETION SMEARS

Smears of nipple secretions may detect breast cancers that involve larger ducts. The breast should not be massaged or squeezed vigorously because cancer cells could be dislodged and spread.

Technique

Gently compress only the nipple and subareolar area to express any secretions which may be lying in the collecting ducts. If no secretion appears at the nipple with this gently compression, do not manipulate further. Allow a "pea size" drop of fluid to collect upon the nipple tip. Draw a glass slide through the drop, spreading the material. Fix immediately. Make several slides if possible. Allow one or two slides to air dry without fixative and label them as "air dried".

DIRECT SCRAPING SMEARS

Smears for malignancy or viral changes can be made from any accessible lesion.

Technique

If the lesion is clean and moist:

Scrape it firmly with a tongue blade or spatula.
Spread material onto a glass slide.
Fix immediately.

If the lesion is dry and necrotic:

Clean it with a saline-moistened swab.
Use a second saline swab to rub the growing margins of the lesion.
Roll or spread the material onto a clean slide.
Fix immediately.

BODY CAVITY/CEREBROSPINAL FLUID COLLECTION

Body Cavity Fluids - Pleural, Peritoneal, Pericardial, Pelvic, Joint, etc.

Move the patient into various positions to resuspend cellular material. Obtain fluid by suitable technique. It may be necessary to use 3 units of heparin per cc. of fluid removed to prevent clotting. Clots trap cells of possible interest and may cause false negative results. Immediately deliver the fluid specimen to the accessioning area of the lab, or the front desk if after hours.

Cerebrospinal (Central Nervous System) Fluid (CSF)

Take as much specimen as possible into a clean tube. Bring the tube to the Pathology lab for immediate processing. If a hematologic malignancy is suspected, air-dried smears for Wright stain must be made by pathology.

URINE COLLECTION

Urine may contain cells exfoliated from malignancies of the bladder, ureter, renal pelvis or kidney.

Technique - Instruct patient on clean catch procedure for collecting 4 to 6 ounces of urine. If the patient has partial urinary tract obstruction with a significant residual, the test will have to be aided by catheterization after 2 hours. Selected sites may be sampled by ureteral catheterization. Label and indicate the collection process appropriately. Send to the Laboratory immediately.

SPUTUM COLLECTION

When a pulmonary lesion is suspected, a complete sputum series should be examined. The series consists of a fresh early morning specimen each day for three to five days. A post bronchoscopy specimen may be included in the series and is particularly valuable. Send to the laboratory immediately after each collection.

Technique - Give the patient a specimen cup in the evening. Instruct him to cough deeply (from the diaphragm) upon awakening and expectorate deep sputum but not saliva. The patient continues the deep coughing and expectoration until several mLs are collected. The cup should be capped tightly. Send to the laboratory immediately.

As mentioned above, a post bronchoscopy specimen is particularly valuable. Give the patient a sputum cup before the bronchoscope is withdrawn. He should cough deeply and expectorate all sputum into the cup for one to two hours. Send to the laboratory immediately

Sputum for Pneumocystis must be sent to the laboratory immediately after collection (fresh specimen).

ENDOSCOPIC SPECIMENS

BRONCHOSCOPY, GASTROSCOPY, COLONOSCOPY, ETC.

The material obtained will depend upon the clinical setting, the anatomic location and the endoscopic findings. The usual sequence of specimens obtained is aspiration of sections, washings, brushings, biopsy and post bronchoscopy sputum (if applicable). Biopsies are placed into formalin. If a hematologic neoplasm is suspected, air-dried smears for Wright stain should be prepared from some part of the specimen if possible. Consult the pathology department (431-5888) about the best way to make air-dried smears.

Washings and Lavage

These are obtained from many different body sites approached by catheter or endoscope. Washings may yield diagnostic malignant cells which cannot be obtained by brushing or biopsy.

> Technique - Isotonic saline is instilled into the region to be washed and left momentarily, washed back and forth, or distributed by patient movement. The washings are retrieved by aspiration and fixed immediately with an equal volume or not more than 30 ml. of CytoLyt fixative. If the specimen is of very large volume (greater than 50 ml) or high protein content, the specimen may be sent down fresh.

Brushings

These are taken from any of the same areas that are examined by washing and biopsy. A brushing has some advantage over biopsy in that the brush may reach some areas that cannot be effectively biopsied.

> Technique - Material collected on the brush may be spread or rolled onto a frosted slide which is fixed immediately in 95% alcohol. Alternatively, the brush may be cut off from the wire and placed entirely in CytoLyt fixative. The cells will be removed in the cytology lab and placed onto slides for microscopic examination.

FINE NEEDLE ASPIRATION COLLECTION

Fine needle aspiration cytology has developed into an increasingly important diagnostic technique. Proper training is required to obtain optimum specimens. The pathologist is available for assistance and/or consultation for those wishing to perform the procedure.

Anesthesia is not needed as the needle is small and the push of the anesthetic needle is more painful than the procedure. More importantly, however, local anesthetic distorts localization of the mass, especially in small lesions, and may cause severe tissue artifacts, preventing accurate interpretation of the material.

ADVANTAGES: A small bore needle causes minimal pain or trauma and rare complications. No anesthesia is needed. The technique is performed on an outpatient basis. Rapid diagnosis can be made, and it is more cost effective and less traumatic than surgical biopsy.

Sampling

Sampling error is a common problem and multiple aspirates are essential to ensure a representative sample. In general, several passes are performed for each lesion. The only exemption is a cyst that is completely collapsed after the initial aspiration. Re-aspirate any residual mass.

Large lesions may have a necrotic center requiring sampling at the periphery. Some organs or lesions (thyroid, desmoplastic neoplasms, small lesions) require experience and adjustment of technique to obtain an adequate specimen.

Processing

The aspirated material is fragile, small in quantity, and must be handled correctly to prevent artifacts. Never throw away any material. Cyst fluid or abundant aspirated material can be evacuated into a plastic specimen container.

Materials and Equipment

Disposable plastic 10 ml. syringe with Luer-lok tip
Syringe holder (allows free use of one hand to immobilize the lesion)
Disposable clear hub needles (25 g and 26 g, 1 inch and 1.5 inch)
Alcohol swabs and gauze pads
Glass frosted end slides labeled with patient name and FIN number
Coplin jar with 95% alcohol

Procedure for Needle Aspiration

- Cleanse the skin with alcohol and dry the area with gauze.
- Immobilize the mass with the fingers of one hand.
- Insert the needle through the skin and into the mass.
- Apply suction when the needle has entered the mass.
- Move the needle back and forth in the mass.
- Release the suction before withdrawing the needle. Never with withdraw the needle with any suction in the syringe.
- Stop the aspiration as soon as blood or any material is present in the hub of the needle. Do not dilute the specimen with blood or fluid.
- Cysts should be completely drained before stopping.
- Apply local pressure for several minutes or until bleeding stops completely.

- Re-aspirate the mass in a slightly different location using a new needle. Sampling error is the most common pitfall.

Slide Preparation of Fine Needle Aspirations

- Label slide with patient's name and one additional patient identifier (MRN, FIN, date of birth)
- Remove the needle from the syringe. A hemostat may be needed to remove the needle quickly and easily.
- Fill the syringe with air and re-attach the needle.
- Express material near the frosted end of the slide with the beveled edge of the needle facing down. Material should be expressed gently at first to allow only one drop of material per slide.
- Spread the material quickly using another slide, pulling the cellular material in the manner used in hematology.
- Fix at least half of the slides in 95% alcohol as they are prepared. Air dry the remaining slides. Label the slides with the number of the pass and "F" for fixed and "A.D." for air dried.

TZANK PREP SMEAR

The Tzank smear is specifically requested when a DNA virus such as Herpes or Varicella is suspected. A differentiation can be made between a viral disease and a bullous skin disease like Pemphigus. Skin or mucous membrane lesions can be sampled.

Technique

- Unroof the vesicle.
- Scrape the lesion firmly with a tongue blade or spatula.
- Spread the material onto a glass slide.
- Fix immediately by immersing into a Coplin jar containing 95% alcohol
- Indicate on the requisition if the slide is fixed. Unfixed (air-dried) slides are less satisfactory.

Last revision date: 9/1/2020, P Kittrell; 07/20/2022 av

Last review date: 9/1/2020, P Kittrell/prc; 07/20/2022 av

APPENDIX Q

LABORATORY REPORT DISTRIBUTION PROTOCOL

Laboratory Report Distribution

The Laboratory Information System, (LIS), commonly referred to as Sunquest, sends copies of all inpatient results, updates on discharged inpatient encounters, copies of results for outpatients presenting to the main hospital facility for service, and any updates to these encounters, to the Hospital Information System, (HIS), via electronic interface. CoPath Anatomic Pathology reports are also transmitted to the HIS through the Sunquest system. The HIS is commonly referred to as Cerner, or Cerner Millennium, and is the data repository of the electronic medical record. Clinicians, other Tallahassee Memorial Hospital (TMH) staff members, and appropriate employees, may display these laboratory results using "PowerChart" views appropriate to their position and relationship to the patient. These views are maintained by the TMH Information Technology (IT) department as part of enterprise information security.

For referred laboratory work received from outside facilities, contracted clients, and for outpatients not presenting to TMH for service, hardcopy reports are printed daily and routed to the facility or physician client or routed via the TMH interface engine to their EMR, or they are faxed.

Additional Laboratory Reports:

Physician Copy of New Data on Discharged Inpatients.
Hardcopy laboratory reports are printed daily for new or updated laboratory results released on discharged inpatients. These reports are routed to the attending physicians' hospital mailbox or to the office if the physician does not have a hospital mailbox and are, as stated above, interfaced to the HIS where they are available for viewing via PowerChart.

Last Revised Date: 09/29/2010 rk 06/20/2016 rk; 07/19/2022 av
Last Review Date: 09/29/2010 rk; 08/29/2011 rk; 08/28/13 rk; 2/19/14 rk; 9/28/14 rk; 05/19/2015 rk; 06/20/2016 rk; 06/15/2018 rk; 6/12/2020rk; 07/19/2022 av

APPENDIX R

PHLEBOTOMY SERVICES MANUAL, POLICIES, GENERAL LABORATORY & BLOOD BANK SERVICE

Please refer to the following administrative policies:

A. Leadership Policy: 070.100.027: "Patient Identification"
https://spark.tmh.org/Interact/Pages/Content/Document.aspx?id=1329

B. Provision of Care, Treatment, & Services Policy: 120.500.001: "Blood Component Administration"
https://spark.tmh.org/Interact/Pages/Content/Document.aspx?id=1616

C. Provision of Care, Treatment, & Services Policy 120.210.049: Specimen Collection: Venipuncture
https://spark.tmh.org/Interact/Pages/Content/Document.aspx?id=1636

Last revision 09/01/2020, prc; 07/19/2022 av
Reviewed 09/01/2020, prc; 07/19/2022 av

BLOOD CULTURE COLLECTION PROTOCOL

PRINCIPLE:

Detection of bacteria, fungi or mycobacteria in the blood prompts therapeutic measures. The etiological determination of septicemia is important for quality patient care. Varied blood culture media should be available to ensure this detection.

SPECIMEN: BLOOD

MEDIA TYPES

1. BD Bactec FX PLUS Aerobic F - gray cap and gray bottle label, plastic bottle
2. BD Bactec LYTIC / 10 Anaerobic – purple cap and purple bottle label, plastic bottle
3. BD Bactec PEDS PLUS / F – pink cap and pink bottle label, plastic bottle
4. Adult Isolator

MEDIA STORAGE

1. All blood culture media is stored in the Clinical Microbiology Dept. Quality Control is performed by the Clinical Microbiology Dept. The BD Bactec FX bottles are stored at room temperature in Microbiology and need to be protected from light. The adult isolators are stored at room temperature.
2. Generally the floors obtain blood culture media as needed. This allows for an efficient flow of inventory. Examine the bottles before using: Make sure the liquid media is clear - DO NOT use a bottle containing turbid medium. Inspect sensor on bottom of bottle; sensor should be intact and a muddy brown color: DO NOT use bottles if the sensor is off-color, not intact or is broken.

BLOOD CULTURE COLLECTION PROTOCOL

PROCEDURE - STEPWISE:

Frequency of Collection

A VENIPUNCTURE AND ARM PREP PROCEDURE IS PERFORMED EACH TIME A BLOOD CULTURE BOTTLE SET IS DRAWN – BOTTLE LABELING INCLUDES TIME OF COLLECTION AND TECH ID

1. Blood cultures ordered "x2" or "x3"
   a. If a time is specified, draw blood culture at indicated time.
   b. If physician needs multiple blood cultures sets drawn one right after the other, **use separate sites or same site, performing a separate arm prep procedure and venipuncture with each set.**
   c. Blood cultures ordered "x2", or "x3" without specified time to be drawn can be collected at the floor's/laboratory's convenience within a 24 hour period.

PLEASE REFER ORDERS FOR BLOOD CULTURES "X3"TO MICROBIOLOGY BEFORE DRAWING BLOOD CULTURES

What media to collect, volume of blood to draw

1. When a blood culture order is placed several questions are asked. The reply to these questions help to provide the guidelines for what blood culture media is needed for a specific patient. Volume of blood is very important. Optimal volume should be obtained if possible. This ensures us the best opportunity to grow the bacteria that is causing the problem for the patient. Please refer to the chart below:

BLOOD CULTURE COLLECTION PROTOCOL

TEST NAME	DRAW	WEIGHT/AGE	OPTIMAL VOLUME	MINIMUM VOLUME	COMPUTER CODES USED IN LAB	COMMENTS
BLOOD CULTURE ADULT QUESTION: IS THE PATIENT IMMUNOCOMPROMISED -NO; IS THE PATIENT SUSPECTED OF HAVING AFB/TUBERCULOSIS - NO; IS THE PATIENT SUSPECTED OF HAVING SUBACUTE BACTERIAL ENDOCARDITIS-NO	**AEROBIC PLUS AND ANAEROBIC LYTIC BLOOD CULTURE BOTTLES**	**ADULT**	**10 MLS PER BOTTLE**	**3 MLS PER BOTTLE**	**BCADLT**	**IF THE BLOOD VOLUME DRAWN IS OVER 5 MLS, BUT LESS THAN 10 MLS, PUT BLOOD IN AEROBIC PLUS BOTTLE. THERE MUST BE A MINIMUM OF 3-5 MLS IN EACH BOTTLE.**
BLOOD CULTURE ADULT QUESTION: IS THE PATIENT IMMUNOCOMPROMISED -YES; IS THE PATIENT SUSPECTED OF HAVING AFB/TUBERCULOSIS - NO; IS THE PATIENT SUSPECTED OF HAVING SUBACUTE BACTERIAL ENDOCARDITIS-NO	**AEROBIC PLUS AND ANAEROBIC LYTIC BLOOD CULTURE BOTTLES** **ADULT ISOLATOR TUBE**	**ADULT** **ADULT**	**10 MLS PER BOTTLE** **10 MLS**	**3 MLS PER BOTTLE** **7.5 MLS**	**BCADLT, BCAFB, BCFC**	**IF YOU UNABLE TO DRAW 18 MLS OF BLOOD (7.5 ML FOR THE ADULT ISOLATOR AND 5 MLS FOR THE AEROBIC PLUS BOTTLE AND 5 MLS FOR THE ANAEROBIC LYTIC BOTTLE), DRAW AN ADULT ISOLATOR AND A PEDIATRIC PEDS PLUS BOTTLE.**
BLOOD CULTURE ADULT QUESTION: IS THE PATIENT IMMUNOCOMPROMISED -NO; IS THE PATIENT SUSPECTED OF HAVING AFB/TUBERCULOSIS - NO; IS THE PATIENT SUSPECTED OF HAVING SUBACUTE BACTERIAL ENDOCARDITIS-YES	**AEROBIC PLUS AND ANAEROBIC LYTIC BLOOD CULTURE BOTTLES** **ADULT ISOLATOR TUBE**	**ADULT** **ADULT**	**10 MLS PER BOTTLE** **10 MLS**	**3 MLS PER BOTTLE** **7.5 MLS**	**BCADLT, BCAFB, BCFC**	**IF YOU UNABLE TO DRAW 18 MLS OF BLOOD (7.5 ML FOR THE ADULT ISOLATOR AND 5 MLS FOR THE AEROBIC PLUS BOTTLE AND 5 MLS FOR THE ANAEROBIC LYTIC BOTTLE), DRAW AN ADULT ISOLATOR AND A PEDIATRIC PEDS PLUS BOTTLE.**

BLOOD CULTURE COLLECTION PROTOCOL

TEST NAME	DRAW	WEIGHT/AGE	OPTIMAL VOLUME	MINIMUM VOLUME	COMPUTER CODES USED IN LAB	COMMENTS
BLOOD CULTURE ADULT QUESTION: IS THE PATIENT IMMUNOCOMPROMISED -NO; IS THE PATIENT SUSPECTED OF HAVING AFB/TUBERCULOSIS - YES; IS THE PATIENT SUSPECTED OF HAVING SUBACUTE BACTERIAL ENDOCARDITIS-NO	**AEROBIC PLUS AND ANAEROBIC LYTIC BLOOD CULTURE BOTTLES** **ADULT ISOLATOR TUBE**	**ADULT** **ADULT**	**10 MLS PER BOTTLE** **10 MLS**	**3 MLS PER BOTTLE** **7.5 MLS**	**BCADLT AND BCAFB**	**IF YOU UNABLE TO DRAW 18 MLS OF BLOOD (7.5 ML FOR THE ADULT ISOLATOR AND 5 MLS FOR THE AEROBIC PLUS BOTTLE AND 5 MLS FOR THE ANAEROBIC LYTIC BOTTLE), DRAW AN ADULT ISOLATOR AND A PEDIATRIC PEDS PLUS BOTTLE.**
BLOOD CULTURE BCPED	**PEDIATRIC PLUS BLOOD CULTURE BOTTLE**	**PEDIATRIC POPULATION**	**5 MLS**	**0.5 MLS**	**BCPED**	**NURSING PROCEDURES COVER THE AGE/WEIGHT ISSUES FOR COLLECTION.**
BLOOD CULTURE BCPED	**PEDIATRIC PLUS BLOOD CULTURE BOTTLE**	**NEWBORN NURSERIES**	**1.5 MLS**	**0.5 MLS**	**BCPED**	

PLEASE NOTE:

FOR OUTREACH LOCATIONS, DRAW ONLY WHAT IS SPECIFICALLY ORDERED. THE ABOVE CHART REFERS ONLY TO INPATIENT LOCATIONS, EC-NE, BIXLER EMERGENCY CENTER, TMH REHAB AND BEHAVIORAL HEALTH CENTER.

BLOOD CULTURE COLLECTION PROTOCOL

Arm Preparation Procedure For Drawing Blood Cultures

Adult Patient: Use ChloraPrep (contains 2% Chlorhexidine Gluconate and 70% Isopropyl Alcohol) and the **Bactec Blood Collection Adapter with a butterfly. A syringe can be used instead of the adapter/butterfly combination. Bottle Type: Bactec Plus Aerobic Bottle (gray cap) and Bactec Lytic Anaerobic Bottle (purple cap)**

1. Palpate arm and be sure of area you intend to use before starting. After prep of this area, you must not touch the area again.
2. Hold applicator with sponge facing downward and gently squeeze wings, releasing solution for a controlled flow.
3. Press sponge against skin and apply ChloraPrep solution using back-and-forth friction scrub for 30 seconds. Use sufficient friction to ensure the solution reaches into the cracks and fissures of the skin. Allow area to dry for at least 30 seconds.
4. Disinfect tops of BACTEC PLUS AEROBIC BOTTLE, BACTEC LYTIC ANAEROBIC BOTTLE or adult isolator tube with a 70% isopropyl alcohol wipe. Let dry.
5. Refer to the chart above to determine the quantity of blood needed. Monitor the draw process at all times during collection to assure proper flow is obtained and to avoid backflow of the culture bottle contents into the patient. Due to the presence of chemical additives in the culture bottle, it is important to prevent possible backflow and subsequent adverse reaction. Obtain blood from the patient and immediately transfer the blood into the proper bottle/tube type. Inoculate the bottles through the center ring on the rubber stopper. **Fill BACTEC PLUS AEROBIC BOTTLE first, BACTEC LYTIC ANAEROBIC BOTTLE second. Mix gently.**
6. Labeling bottles: For the BACTEC PLUS AEROBIC BOTTLE AND BACTEC LYTIC ANAEROBIC BOTTLE, place the lab specimen label on the bottle being careful not to cover the bottle type bar code label. Place the label so the barcode is oriented up and down and not around the bottle. Indicate on the bottle if the specimen is drawn from a central line, PICC line. For the adult isolator, place the specimen bar code label on the tube. Each tube/bottle should be labeled with lab label, date and time of collection, and tech ID #.

BLOOD CULTURE COLLECTION PROTOCOL

Pediatric Patient Preparation: Use the ChloraPrep (contains 2% Chlorhexidine Gluconate and 70% Isopropyl Alcohol)
Bottle Type: Bactec Pediatric Plus Bottle (pink cap)

1. Palpate arm and be sure of area you intend to use before starting. After prep of this area, you must not touch the area again.
2. **Hold** applicator with sponge tip facing downward and gently squeeze, releasing solution for a controlled flow. Press tip against skin and apply ChloraPrep solution using back-and-forth friction scrub for 30 seconds. Allow area to dry at least 30 seconds. **If you are using the Medi-Flex 1.5 ml**, hold applicator with sponge facing downward and gently squeeze wings, releasing solution for a controlled flow. Press sponge against skin and apply ChloraPrep solution using back-and-forth friction scrub for 30 seconds. Use sufficient friction to ensure the solution reaches into the cracks and fissures of the skin. Allow area to dry for at least 30 seconds.
3. Disinfect top of BACTEC PEDIATRIC PLUS BOTTLE with a 70% isopropyl alcohol wipe. Let dry.
4. Refer to the chart above to determine the quantity of blood needed. Monitor the draw process at all times during collection to assure proper flow is obtained and to avoid backflow of the culture bottle contents into the patient. Due to the presence of chemical additives in the culture bottle, it is important to prevent possible backflow and subsequent adverse reaction. Obtain blood from the patient and immediately transfer the blood into the proper bottle. Inoculate the bottles through the center ring on the rubber stopper. **Mix gently.**
5. Labeling bottles: For the BACTEC PEDIATRIC PLUS BOTTLE, place the lab specimen label on the bottle being careful not to cover the bottle type bar code label. Place the label so the barcode is oriented up and down and not around the bottle. Indicate on the bottle if the specimen is drawn from a central line, PICC line. Each tube/bottle should be labeled with lab label, date and time of collection, and tech ID #.

BLOOD CULTURE COLLECTION PROTOCOL

Nursery Patient: Use ChloraPrep (2% Chlorhexidine Gluconate/70% Isopropyl Alcohol), except for infants <28 week gestation or <1000 grams. In these cases, betadine/alcohol prep process is used.

Bottle Type: Bactec Pediatric Plus Bottle (pink cap)

1. Palpate arm and be sure of area you intend to use before starting. After prep of this area you must not touch the area again.
2. Swab site for 30 seconds with ChloraPrep or betadine. Allow area to dry for 30 seconds.
3. Disinfectant top of BATEC PEDIATRIC PLUS BOTTLE with 70% isopropyl. Let dry.
4. Refer to the chart above to determine the quantity of blood needed. Monitor the draw process at all times during collection to assure proper flow is obtained and to avoid backflow of the culture bottle contents into the patient. Due to the presence of chemical additives in the culture bottle, it is important to prevent possible backflow and subsequent adverse reaction.
5. Obtain blood from the patient and immediately transfer the blood into the proper bottle type. If betadine has been used for the arm prep, once the blood has been drawn, wipe the patient's arm with alcohol prep. Inoculate the bottles through the center ring on the rubber stopper. **Mix gently.**
6. Labeling bottles: For the BACTEC PEDIATRIC PLUS BOTTLE, place the lab specimen label on the bottle being careful not to cover the bottle type bar code label. Please use the barcode portion of the label on the bottle. Indicate on the bottle if the specimen is drawn from a central line, PICC line. Each tube/bottle should be labeled with lab label, date and time of collection, and tech ID #.

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