PROGRAM Standard Operating Procedure – Laboratory Services	
Title: MIC10100 – Microbiology Specimen Processing	Policy Number:
Program Name: Laboratory Services	
Applicable Domain: Lab, DI and Pharmacy Services	
Additional Domain(s):	
Effective Date:	Next Review Date:
Issuing Authority: Director of Health Services	Date Approved:
Accreditation Canada Applicable Standard: N/A	

GUIDING PRINCIPLE:
A guide to the processing of specimens submitted for bacterial culture for the following specimens:

PURPOSE/RATIONALE:
This standard operating procedure describes the specimen processing for microbiology specimens processed at Stanton Territorial Hospital.

SCOPE/APPLICABILITY:
This procedure applies to Medical Laboratory Technologists (MLTs) and Medical Laboratory Assistants (MLAs) processing specimens for the microbiology laboratory.

REAGENTS and/or MEDIA:
- Anaerobic KV agar (KV)
- Blood agar (BA)
- Brucella agar (BRU)
- Chocolate agar (CHO)
- Colistin-nalidixic acid agar (CNA)
- Laked blood agar (KV)
- LIM broth (LIM)
- MacConkey agar (MAC)
- MRSA*Select* II agar (MRS)
- Sabouraud agar (SAB)
- StrepB*Select* agar (GBS)
- Thayer Martin agar (TM)
- Thioglycollate broth (THIO)
- Uri*Select* 4 agar (URI)
- VRE*Select* agar (VRE)

SUPPLIES:
- Disposable 1 µL and 10 µL loops
- Disposable needles
- Glass microscope slides
- Ringed cytology slides
- Alcohol swabs
- Sterile pipettes
- Sterile swabs
- Anaerobic trays and jars
- Anaerobic indicators
- AnaeroGen packs
- AnaeroPouch packs
- Blood culture subculture vents

EQUIPMENT:
- Biosafety cabinet
- 35° ambient air and 35° CO_2 incubators

SPECIAL SAFETY PRECAUTIONS:
Containment Level 2 facilities, equipment, and operational practices for work involving infectious or potential infectious materials or cultures.
- Ensure that appropriate hand hygiene practices be used.
- Lab gown must be worn when performing activities with potential pathogens.
- Gloves must be worn when direct skin contact with infected materials is unavoidable.
- Eye protection must be used when there is a known or potential risk of exposure of splashes.
- All procedures that may produce aerosols or involve high concentrations or large volumes should be conducted in a biological safety cabinet (BSC).
- The use of needles, syringes and other sharp objects should be strictly limited.

All patient specimens are assumed to be potentially infectious. Routine Practices must be followed. Since viable micro-organisms are used, all cultures must be handled with appropriate precautions. All equipment in contact with cultures should be decontaminated by appropriate methods.

QUALITY CONTROL:

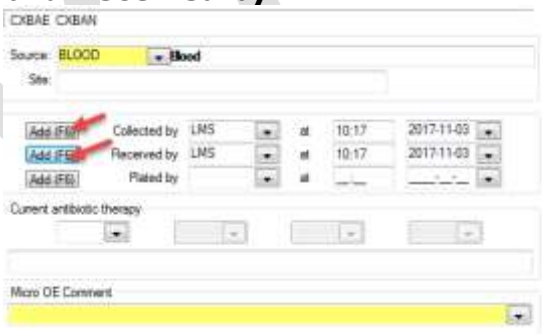
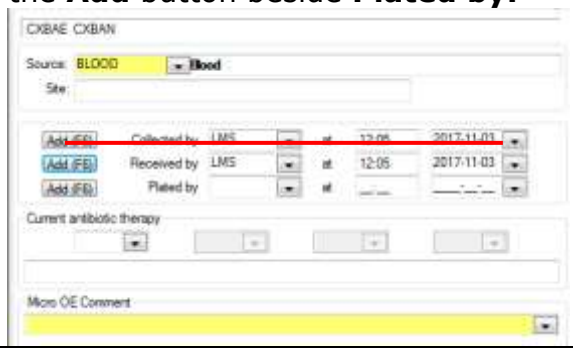
- Refer to MIC60010-Microbiology Quality Control procedure
- Refer to MIC60040-Culture Media Quality Control procedure

1. PROCEDURE INSTRUCTIONS: BACTERIAL VAGINOSIS SCREEN

Step	Action
1	• Posterior vaginal vault or vaginal orifice • Only performed on patients that are >13 years of age • If specimen is received on patient ≤13 years of age, process as a genital culture • Refer to MIC10110-Bacterial Vaginosis Specimen Processing Job Aid for other tests ordered on vaginal swabs
2	Specimen should be stored at room temperature.
3	Criteria for rejection: 1. Unlabeled/mislabelled specimen 2. Specimen container label does not match patient identification on requisition 3. Duplicate specimens obtained with same collection method within 24 hours
4	Label the following media/slides: • Label the frosted end of a glass microscope slide with the accession number, patient's last name and specimen type
5	Make Gram stain smear. Refer to MIC10000-Microbiology Specimen Handling.
6	Gram stain slide. Refer to MIC20100-Gram Stain.

2. PROCEDURE INSTRUCTIONS: BLOOD CULTURE

a. Receiving Blood Culture bottles

Step	Action
1	• Blood • Sterile fluid received in blood culture bottles
2	Specimen should be stored at room temperature.
3	Criteria for rejection: 1. Unlabeled/mislabelled specimen 2. Specimen container label does not match patient identification on requisition 3. Broken/cracked bottle **NOTE:** If patient has been treated with antibiotics, blood culture specimens are considered irretrievable. Waiver of responsibility form SCM40110 needs to be filled out by the responsible nurse **NOTE:** Except for the above conditions, blood culture specimens are not rejected regardless of delayed transport, if received frozen or if bottles are expired. Ensure the appropriate specimen quality comments are attached to the specimen in OE and process blood culture specimen
4	Blood culture bottles need to be collected and received into SoftMic before loaded onto the BACTEC FX analyzer. It is important when receiving blood culture bottles that they are received but **NOT** plated. The instrument will not issue preliminary and final no growth reports if the specimen has been plated.
5	Receiving can be performed in Order Entry: 1. Order blood culture bottles 2. Collect and receive bottles by selecting the **Add** button beside **Collected by** and **Received by**:  3. Do **NOT** select the **Add** button beside **Plated by:** 

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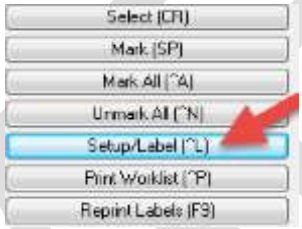
Receiving of multiple bottles can be performed in the Receiving Worklist:

1. Select **Receiving Worklist** icon on the main menu
2. Select **Not Received:**

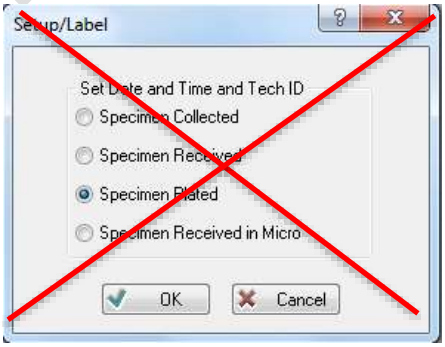
3. Scan the blood culture bottles that you want to receive. Each bottle that has been scanned will have a red check mark beside the order on the left side:

4. Select **Setup/Label** from the menu on the right-hand side:



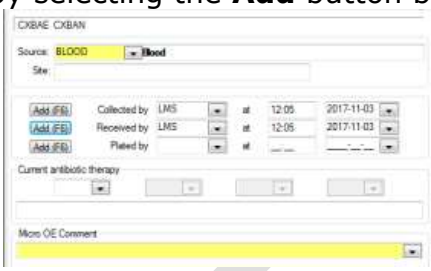
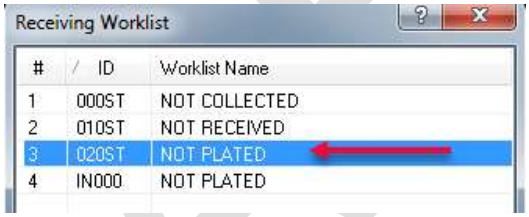
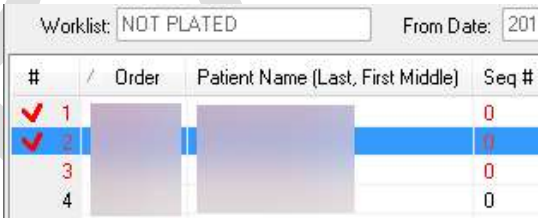
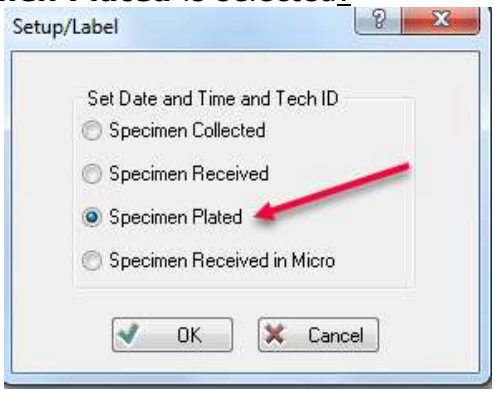
5. Ensure that **Specimen Received** is selected:

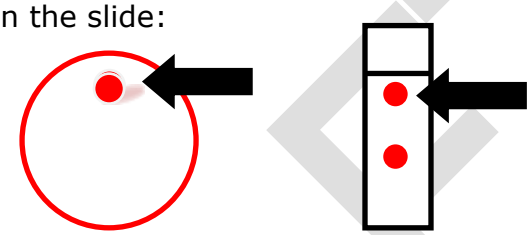
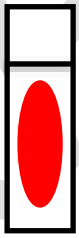
6. Ensure that **Specimen Plated** is **NOT** selected:



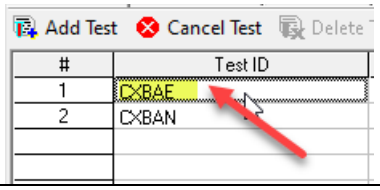
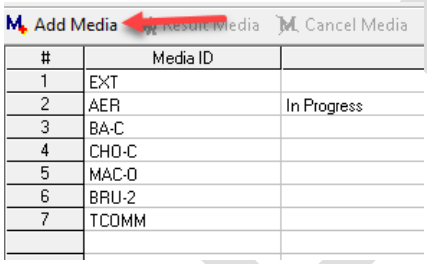
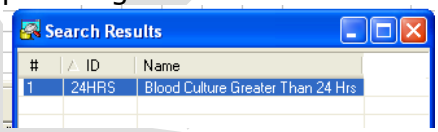
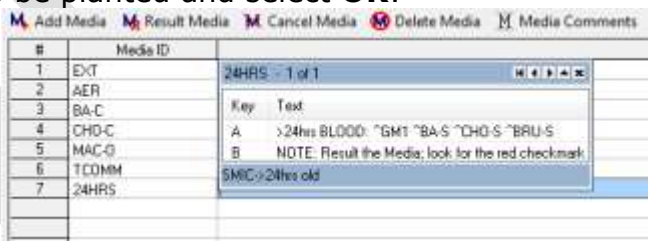
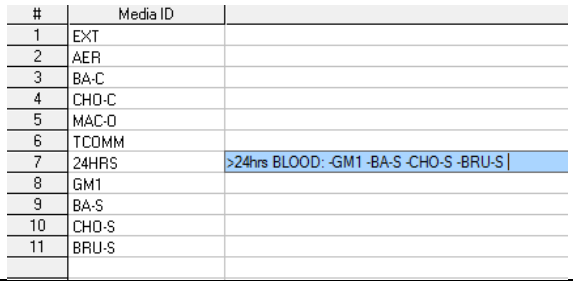
7. Once you have ensured that Specimen Received is selected, select the OK button to receive the specimens
8. Load bottles onto the BACTEC FX analyzer as per MIC71000-BACTEC FX Instrument

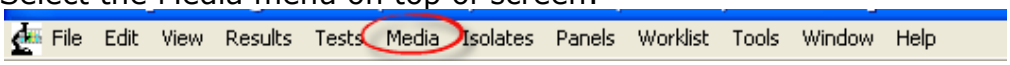
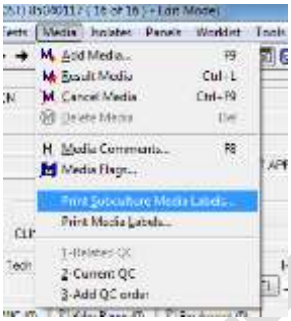
b. Positive Blood Culture in BACTEC FX

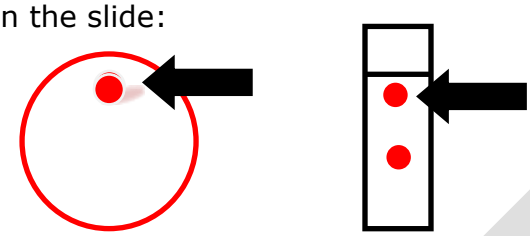
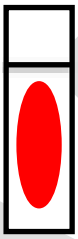
Step	Action
1	Remove positive blood culture bottle(s) from the BACTEC FX. Refer to MIC71000-BACTEC FX Instrument.
2	<u>Plating can be performed in Order Entry</u>: 1. Enter accession number 2. Select the Micro Tab 3. Plate the bottle(s) by selecting the **Add** button beside **Plated by:**  <u>Plating can be performed in Receiving Worklist</u>: 1. Select **Receiving Worklist** icon on the main menu 2. Select **Not Plated**:  3. Scan the blood culture bottles that you want to plate. Each bottle that has been scanned will have a red check mark beside the order on the left side:  4. Select **Setup/Label** from the menu on the right-hand side 5. Ensure that **Specimen Plated** is selected:  6. Select OK to plate the specimens

3	Label the following media/slides: • BA-C: Blood agar • CHO-C: Chocolate agar • MAC-O: MacConkey agar • BRU-2: Brucella agar • Label the frosted end of a glass microscope slide with the accession number, patient's last name, bottle type (AE/AN/PED) • Clean slide with alcohol swab prior to inoculation **NOTE:** Indicate which bottle is positive on ALL plates and slides **NOTE:** Indicate the date the bottle(s) went positive on all plates
4	Working in the biosafety cabinet subculture the bottle(s): 1. Swab the rubber septum with an alcohol pad and insert a vent 2. Holding the bottle horizontally, place one drop on each plate and two small drops on the slide:  3. Carefully pull the vent out of the bottle and discard it into the sharps container in the biosafety cabinet 4. Using a sterile loop, streak the plates for isolation 5. Spread the drop out on the FULL slide using the sterile loop: 
5	Place MAC plate in the O_2 incubator in white tray labeled "Positive Blood Culture."
6	Place BA and CHO plates in the CO_2 incubator in white tray labeled "Positive Blood Culture."
7	Place BRU in anaerobic jar or tray with anaerobic pouch and indicator as soon as practical after inoculation. Label jar or tray with date of 48 hour read. Anaerobes should not be exposed to air for 42-48 hours after inoculation. Refer to MIC10000-Microbiology Specimen Handling.
8	Gram stain slide. Refer to MIC20100-Gram Stain. **NOTE:** Positive blood culture gram stains should be read within 1 hour of processing during regular Microbiology hours

c. Blood Culture received >24 hr

Step	Action
1	In Results Entry, place the cursor in the first bottle in the test ID column: 
2	<u>In the media section of the order at the bottom part of the screen</u>: 1. Select **"Add Media"**  2. In the Select Media box add the test ID **"24"** and select **OK**:  3. The Search Results box appears with 24HRS media ID selected. Select **OK** to add it to the plate log:  4. In the Media Comment line, use the keypad to select **Key A** to order the plates to be planted and select **OK**:  5. The Keypad will generate the appropriate plates in the lines below the 24HRS Media ID: 

3	<u>Save changes to the plate log using the Print Subculture Media Label</u>: 1. Select the Media menu on top of screen:  2. Scroll down and select Print Subculture Media Labels:  3. Pop-up box asks to save changes, select **Yes** to save changes
4	<u>Media labels to be printed will be selected</u>: 1. After saving changes the **Select Subculture Media** box generates 2. All required plates are checked off 3. Select **OK**  4. After selecting OK the **Micro Label** box generates 5. Ensure the format matches the example: 
5	<u>Label the following media/slides</u>: • BA-C: Blood agar • CHO-C: Chocolate agar • BRU-2: Brucella agar • Label the frosted end of a glass microscope slide with the accession number, patient's last name, bottle type (AE/AN/PED) • Clean slide with alcohol swab prior to inoculation **NOTE:** Indicate which bottle is >24 hours on ALL plates and slides **NOTE:** Write "> 24 HR" on all plates

6	<u>Working in the biosafety cabinet subculture the bottle(s)</u>: 1. Swab the rubber septum with an alcohol pad. Insert a vent into the bottle 2. Holding the bottle horizontally, place one drop on each plate and two small drops on the slide:  3. Carefully pull the vent out of the bottle and discard it into the sharps container in the biosafety cabinet 4. Using a sterile loop, streak the plates for isolation 5. Spread the drop out on the FULL slide using the sterile loop: 
7	Load bottles onto the BACTEC FX analyzer as per MIC71000-BACTEC FX Instrument.
8	Place BA and CHO plates in the CO_2 incubator in white tray labeled "> 24 hr Blood Culture".
9	Place BRU in anaerobic jar or tray with anaerobic pouch and indicator as soon as practical after inoculation. Label jar or tray with date of 48 hour read. Anaerobes should not be exposed to air for 42-48 hours after inoculation. Refer to MIC10000-Microbiology Specimen Handling.
10	Gram stain slide. Refer to MIC20100-Gram Stain.

3. PROCEDURE INSTRUCTIONS: BLOOD PRODUCT CULTURE

Step	Action
1	Blood products need to be processed as: • Body fluid culture received in blood culture bottles: ➢ CXFBC → Source → Blood product • Body fluid culture: ➢ CXFLD → Source → Blood product
2	Specimen should be refrigerated.
3	Criteria for rejection: 1. Improperly collected, labeled, transported or handled specimens should be processed. Waiver of responsibility form SCM40110 needs to be filled out by the responsible nurse.
4	Processing CXFBC: 1. 20 mL of blood product is needed for the inoculation of blood culture bottles and 5 mL of blood product is needed for the inoculation of the body fluid culture media. If sufficient volume is received, proceed to step 3. If sufficient volume is not received, aseptically inject 10 to 20 mL of Thioglycollate broth into the blood product bag and mix. 2. On the blood culture bottles, place a mark at 10 mL above the level of the broth. Remove the caps and clean the septum with an alcohol pad. Label bottles with LIS labels. 3. Inspect the blood product bag and tubing and determine where the material will be taken from. Use alcohol pad to clean the area where the needle will be inserted. 4. Using a butterfly needle and a vacutainer barrel, aseptically insert the needle end into the blood product bag. Using the barrel, attach a blood culture bottle and fill to the 10 mL mark. Repeat with the second bottle. Also collect a red top vacutainer tube. 5. Remove the butterfly needle from the blood product and dispose of carefully into the sharps container. Place a piece of tape over the hole and place the blood product bag into a large biohazard bag and store in refrigerator until testing is complete. 6. Load bottles onto the BACTEC FX analyzer as per MIC71000-BACTEC FX Instrument.
5	Processing CXFLD: 1. From the red top tube collected above, use a sterile pipette to inoculate Blood agar, Chocolate agar and Brucella agar and make a gram stain with one drop of the blood product. Streak out to cover whole plate. 2. Place BA and CHO plates in the CO_2 incubator on "New Wound Culture" shelf. 3. Place BRU in anaerobic jar or tray with anaerobic pouch and indicator as soon as practical after inoculation. Label jar or tray with date of 48 hour read. Anaerobes should not be exposed to air for 42-48 hours after inoculation. Refer to MIC10000-Microbiology Specimen Handling. 4. Gram stain slide. Refer to MIC20100-Gram Stain. **NOTE:** Gram stain must be read before culture plates

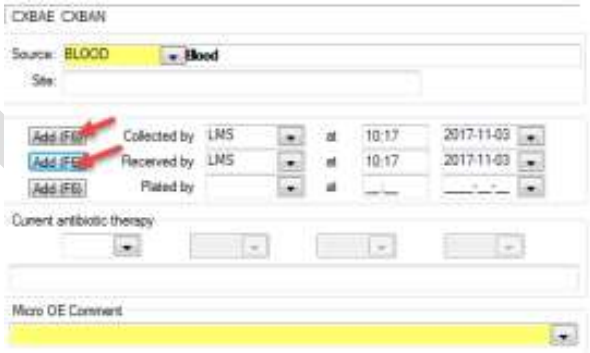
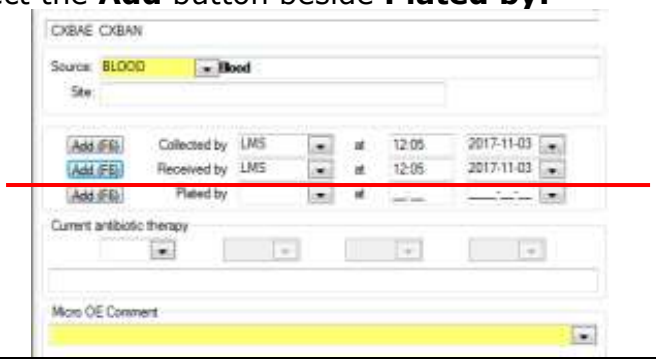
4. PROCEDURE INSTRUCTIONS: BODY FLUID CULTURE

a. Body fluid received in sterile container:

Step	Action
1	• Fluid should be collected in a sterile specimen container or tube and/or into blood culture bottles • If fluid is received in blood culture bottles, refer to part b. • If swab is received, add Specimen Quality comment **SWBFL** • Refer prosthetic device specimens for culture to *Dyna*LIFE • Refer tissue or biopsy specimens for culture to *Dyna*LIFE
2	Specimen should be stored at room temperature. **NOTE:** If a delay in processing is anticipated, do NOT refrigerate
3	Criteria for rejection: 1. Insufficient volume for tests requested: contact the physician to prioritize requests 2. Leaking specimens should be processed, but alert the physician of the possibility of contamination 3. Specimens received in the laboratory in a syringe with the needle still attached will be rejected. In addition, an RL6 will be filed outlining the hazard. Refer to SCM40100-Specimen Acceptance and Rejection Policy 4. Improperly collected, labeled, transported or handled specimens should be processed. Waiver of responsibility form SCM40110 needs to be filled out by the responsible nurse 5. If only blood culture bottles are received, a gram stain cannot be performed
4	Volume received: (Tube 2 is the usual tube for Microbiology) • **>1mL**: Centrifuge at 3500 rpm for 10 minutes (Program 2). Remove supernatant with sterile pipette and place into red top tube labeled with SUP label. Mix sediment with pipette. • **<=1mL**: Inoculate plates using a sterile pipette. **NOTE**: If sample is **NOT** centrifuged, add Specimen Quality comment **NOSPI** to state: "Sample not concentrated"
5	Label the following media/slides**:** • BA-C: Blood agar • CHO-C: Chocolate agar • MAC-O: MacConkey agar • BRU-2: Brucella agar • THIO2: Thioglycollate broth • Label the frosted end of a microscope slide with the accession number, patient's last name and specimen type. Clean slide with alcohol swab prior to inoculation
6	Inoculate plates with specimen. Refer to MIC10000-Microbiology Specimen Handling.
7	Make Gram stain smear. Refer to MIC10000-Microbiology Specimen Handling.
8	Streak plates for isolation. Refer to MIC10000-Microbiology Specimen Handling.
9	Place MAC plate in the O_2 incubator on "New Wound Culture" shelf.

10	Place BA and CHO plates in the CO_2 incubator on "New Wound Culture" shelf.
11	Place BRU in anaerobic jar or tray with anaerobic pouch and indicator as soon as practical after inoculation. Label jar or tray with date of 48 hour read. Anaerobes should not be exposed to air for 42-48 hours after inoculation. Refer to MIC10000-Microbiology Specimen Handling.
12	Label THIO with Day 2 date and Day 5 date. Place THIO broth in THIO rack in O_2 incubator in "Day 2" row. **NOTE:** If fluid is from above the neck, keep THIO and BRU for 10 days
13	Gram stain slide. Refer to MIC20100-Gram Stain. **NOTE:** Fluid gram stains should be read within 1 hour of processing during regular Microbiology laboratory hours

b. Body fluid received in blood culture bottle <24 hours old:

Step	Action
1	• Sterile fluid received in blood culture bottles
2	Specimen should be stored at room temperature.
3	Criteria for rejection: 1. Unlabeled/mislabelled specimen 2. Specimen container label does not match patient identification on requisition 3. Broken/cracked bottle **NOTE:** If patient has been treated with antibiotics, fluid specimens in blood culture bottles are considered irretrievable. Waiver of responsibility form SCM40110 needs to be filled out by the responsible nurse **NOTE:** Except for the above conditions, fluid specimens in blood culture bottles are not rejected regardless of delayed transport, if received frozen or if bottles are expired. Ensure the appropriate specimen quality comments are attached to the specimen in OE and process blood culture specimen
4	Sterile body fluids received in blood culture bottles need to be collected and received into SoftMic before loaded onto the BACTEC FX analyzer. It is important when receiving sterile body fluids blood culture bottles that they are received but **NOT** plated. The instrument will not issue preliminary and final no growth reports if the specimen has been plated.
5	Receiving can be performed in Order Entry: 1. Order sterile body fluid received in blood culture bottles as **CXFBC** 2. Collect and receive bottles by selecting the **Add** button beside **Collected by** and **Received by**:  3. Do **NOT** select the **Add** button beside **Plated by:** 

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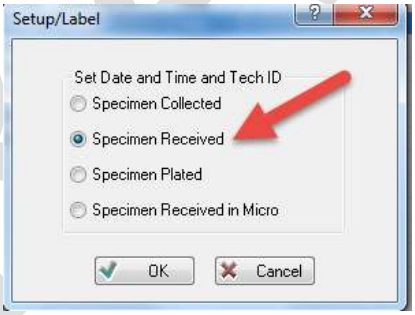
Receiving of multiple bottles can be performed in the Receiving Worklist:

1. Select **Receiving Worklist** icon on the main menu
2. Select **Not Received:**

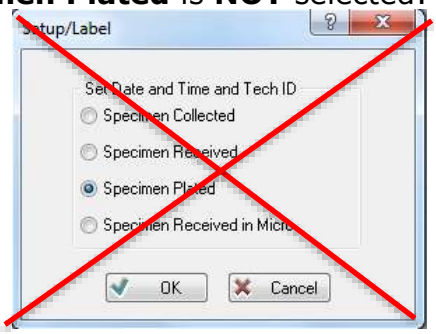
3. Scan the blood culture bottles that you want to receive. Each bottle that has been scanned will have a red check mark beside the order on the left side:

4. Select **Setup/Label** from the menu on the right-hand side:

5. Ensure that **Specimen Received** is selected:

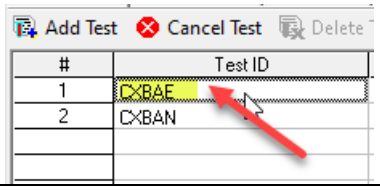
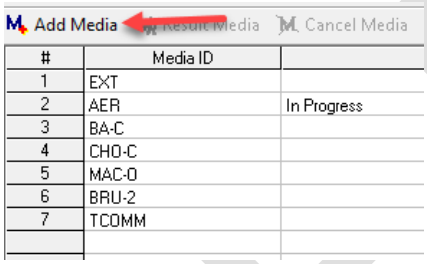
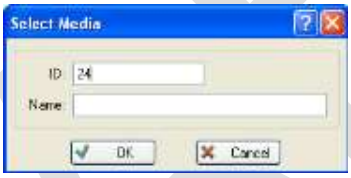
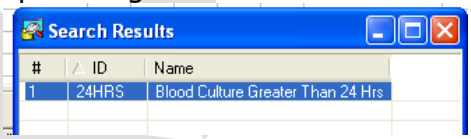
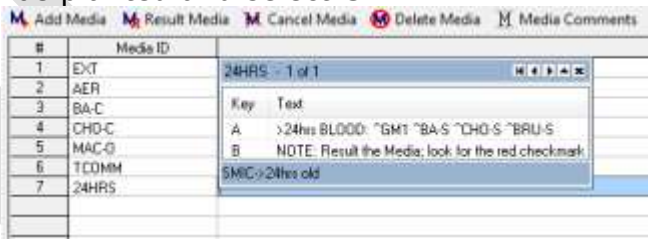
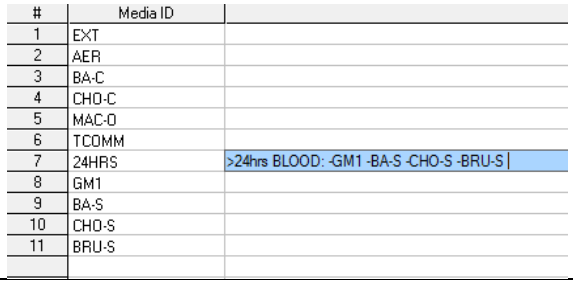


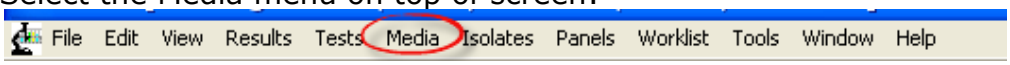
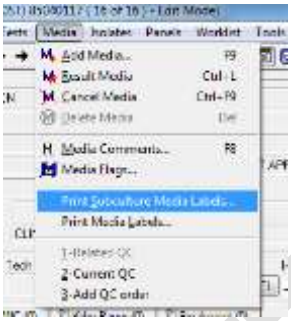
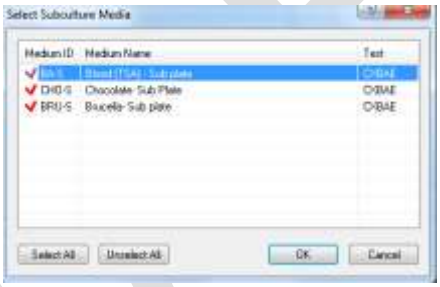
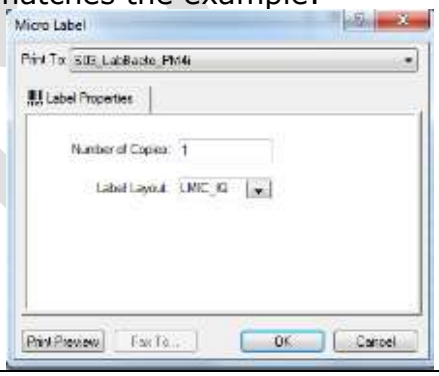
6. Ensure that **Specimen Plated** is **NOT** selected:

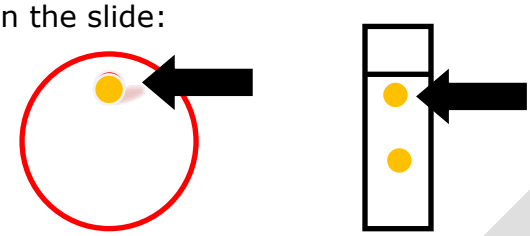
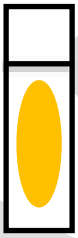


7. Once you have ensured that Specimen Received is selected, select the OK button to receive the specimens
8. Load bottles onto the BACTEC FX analyzer as per MIC71000-BACTEC FX Instrument

c. Body fluid received in blood culture bottle >24 hours old:

Step	Action
1	In Results Entry, place the cursor in the first bottle in the test ID column: 
2	<u>In the media section of the order at the bottom part of the screen</u>: 1. Select **Add Media**  2. In the Select Media box add the test ID **24** and select **OK**:  3. The Search Results box appears with 24HRS media ID selected. Select **OK** to add it to the plate log:  4. In the Media Comment line, use the keypad to select **Key A** to order the plates to be planted and select **OK**:  5. The Keypad will generate the appropriate plates in the lines below the 24HRS Media ID: 

3	Save changes to the plate log using the Print Subculture Media Label: 1. Select the Media menu on top of screen:  2. Scroll down and select Print Subculture Media Labels:  3. Pop-up box asks to save changes, select **Yes** to save changes
4	Media labels to be printed will be selected: 1. After saving changes the **Select Subculture Media** box generates 2. All required plates are checked off 3. Select **OK**  4. After selecting OK the **"Micro Label"** box generates 5. Ensure the format matches the example: 
5	Label the following media/slides: • BA-C: Blood agar • CHO-C: Chocolate agar • BRU-2: Brucella agar • Label the frosted end of a glass microscope slide with the accession number, patient's last name, bottle type (AE/AN/PED) • Clean slide with alcohol swab prior to inoculation **NOTE:** Indicate which bottle is >24 hours on ALL plates and slides **NOTE:** Write "> 24 HR" on all plates

6	<u>Working in the biosafety cabinet subculture the bottle(s)</u>: 1. Swab the rubber septum with an alcohol pad. Insert a vent into the bottle 2. Holding the bottle horizontally, place one drop on each plate and two small drops on the slide:  3. Carefully pull the vent out of the bottle and discard it into the sharps container in the biosafety cabinet 4. Using a sterile loop, streak the plates for isolation 5. Spread the drop out on the FULL slide using the sterile loop: 
7	Load bottles onto the BACTEC FX analyzer as per MIC71000-BACTEC FX Instrument.
8	Place BA and CHO plates in the CO_2 incubator in white tray labeled "> 24 hr Blood Culture".
9	Place BRU in anaerobic jar or tray with anaerobic pouch and indicator as soon as practical after inoculation. Label jar or tray with date of 48 hour read. Anaerobes should not be exposed to air for 42-48 hours after inoculation. Refer to MIC10000-Microbiology Specimen Handling.
10	Gram stain slide. Refer to MIC20100-Gram Stain.

5. PROCEDURE INSTRUCTIONS: CSF CULTURE

Step	Action
1	• Central nervous system shunt fluid • CSF from lumbar puncture
2	Specimen should be stored at room temperature. **NOTE:** If a delay in processing is anticipated, do NOT refrigerate
3	Criteria for rejection: 1. Insufficient volume for tests requested: contact the physician to prioritize requests 2. Leaking specimens should be processed, but alert the physician of the possibility of contamination 3. Improperly collected, labeled, transported or handled specimens should be processed. Waiver of responsibility form SCM40110 needs to be filled out by the responsible nurse
4	Volume received: (Tube 2 is the usual tube for Microbiology) • **>1mL**: Centrifuge at 3500 rpm for 10 minutes (Program 2). Remove supernatant with sterile pipette and place into red top tube labeled with SUP label. Mix sediment with pipette • **<=1mL**: Inoculate plates using a sterile pipette
5	Label the following media/slides: • BA-C: Blood agar • CHO-C: Chocolate agar • MAC-O: MacConkey agar • Label the frosted end of a ringed cytology slide with the accession number, patient's last name and specimen type • Clean slide with alcohol swab prior to inoculation **NOTE:** If specimen is from a shunt, THIO needs to be added
6	Inoculate plates with specimen. Refer to MIC10000-Microbiology Specimen Handling.
7	Streak plates for isolation. Refer to MIC10000-Microbiology Specimen Handling.
8	Place the remaining sample sediment, supernatant in the O_2 incubator in sample bucket.
9	Place MAC plate in the O_2 incubator in white tray labeled "CSF".
10	Place BA and CHO plates in the CO_2 incubator in white tray labeled "CSF."
11	Gram stain slide. Refer to MIC20100-Gram Stain. **NOTE:** CSF gram stains should be read within 1 hour of processing during regular Microbiology hours

6. PROCEDURE INSTRUCTIONS: EAR CULTURE

Step	Action
1	• External auditory canal (outer ear) • Otitis media discharge swabbed from external auditory canal **NOTE:** Typanocentesis fluid should be ordered as a body fluid culture
2	Specimen should be stored at room temperature. **NOTE:** If transport is >2 hours, swabs should be refrigerated
3	Criteria for rejection: 1. Unlabeled/mislabelled specimen 2. Specimen container label does not match patient identification on requisition
4	Label the following media/slides: • BA-C: Blood agar • CHO-C: Chocolate agar • CNA-C: Colistin-nalidixic acid agar • MAC-O: MacConkey agar • Label the frosted end of a glass microscope slide with the accession number, patient's last name and specimen type
5	Inoculate plates with specimen. Refer to MIC10000-Microbiology Specimen Handling.
6	Make Gram stain smear. Refer to MIC10000-Microbiology Specimen Handling.
7	Streak plates for isolation. Refer to MIC10000-Microbiology Specimen Handling.
8	Place MAC plate in the O_2 incubator on "New Respiratory Culture" shelf.
9	Place BA, CHO and CNA plates in the CO_2 incubator on "New Respiratory Culture" shelf.
10	Gram stain slide. Refer to MIC20100-Gram Stain.

7. PROCEDURE INSTRUCTIONS: EYE CULTURE

a. Superficial Eye

Step	Action
1	• Conjunctiva • Superficial corneal specimens
2	Specimen should be stored at room temperature.
3	Criteria for rejection: 1. Unlabeled/mislabelled specimen 2. Specimen container label does not match patient identification on requisition
4	Label the following media/slides: • BA-C: Blood agar • CHO-C: Chocolate agar • Label the frosted end of a glass microscope slide with the accession number, patient's last name and specimen type
5	Inoculate plates with specimen. Refer to MIC10000-Microbiology Specimen Handling.
6	Make Gram stain smear. Refer to MIC10000-Microbiology Specimen Handling.
7	Streak plates for isolation. Refer to MIC10000-Microbiology Specimen Handling.
8	Place BA and CHO plates in the CO_2 incubator on "New Respiratory Culture" shelf.
9	Gram stain slide. Refer to MIC20100-Gram Stain.

b. Deep Eye

Step	Action
1	• Corneal scrapings • Aqueous/vitreous fluid • Keratitis
2	Specimen should be stored at room temperature.
3	Criteria for rejection: 1. Unlabeled/mislabelled swabs 2. Specimen container label does not match patient identification on requisition 3. Improperly collected, labeled, transported or handled specimens should be processed. Waiver of responsibility form SCM40110 needs to be filled out by the responsible nurse
4	Label the following media/slides: • BA-C: Blood agar • CHO-C: Chocolate agar • MAC-O: MacConkey agar • BRU-2: Brucella agar • Label the frosted end of a glass microscope slide with the accession number, patient's last name and specimen type • Clean slide with alcohol swab prior to inoculation
5	Inoculate plates with specimen. Refer to MIC10000-Microbiology Specimen Handling.
6	Make Gram stain smear. Refer to MIC10000-Microbiology Specimen Handling.
7	Streak plates for isolation. Refer to MIC10000-Microbiology Specimen Handling.
8	Place MAC plate in the O_2 incubator on "New Respiratory Culture" shelf.
9	Place BA and CHO plates in the CO_2 incubator on "Respiratory Culture" shelf.
10	Place BRU in anaerobic jar or tray with anaerobic pouch and indicator as soon as practical after inoculation. Label jar or tray with date of 48 hour read. Anaerobes should not be exposed to air for 42-48 hours after inoculation. Refer to MIC10000-Microbiology Specimen Handling.
11	Gram stain slide. Refer to MIC20100-Gram Stain. **NOTE:** Deep eye stains should be read within 1 hour of processing during regular Microbiology hours

8. PROCEDURE INSTRUCTIONS: GENITAL CULTURE

a. Lower Genital Tract

Step	Action
1	• Cervix • Labia • Penis • Vagina • Vulva
2	Specimen should be stored at room temperature.
3	Criteria for rejection: 1. Unlabeled/mislabelled specimen 2. Specimen container label does not match patient identification on requisition 3. Do not accept vaginal swabs from women >13 years of age for genital culture unless significant clinical information is provided. Refer to MIC10231-Bacterial Vaginosis Specimen Processing Job Aid 4. Do not process vaginal swabs for yeast culture unless significant clinical information is provided. Refer to MIC10110-Bacterial Vaginosis Specimen Processing Job Aid
4	Label the following media/slides: • BA-C: Blood agar • CHO-C: Chocolate agar • TM-C: Thayer Martin agar • MAC-O: MacConkey agar • Label the frosted end of a glass microscope slide with the accession number, patient's last name and specimen type
5	Inoculate plates with specimen. Refer to MIC10000-Microbiology Specimen Handling.
6	Make Gram stain smear. Refer to MIC10000-Microbiology Specimen Handling.
7	Streak plates for isolation. Refer to MIC10000-Microbiology Specimen Handling.
8	Place MAC plate in the O_2 incubator on "New Urine Culture" shelf.
9	Place BA, CHO and TM plates in the CO_2 incubator on "New Urine Culture" shelf.
10	Gram stain slide. Refer to MIC20100-Gram Stain.

b. Upper Genital Tract

Step	Action
1	• Endometrial swabs, biopsies and curettings • Placenta swabs and tissues • Products of conception, endometrial/uterine, Cul de Sac/transvaginal, fallopian tube, tubo-ovarian swabs or aspirates
2	Specimen should be stored at room temperature.
3	Criteria for rejection: 1. Unlabeled/mislabelled specimen 2. Specimen container label does not match patient identification on requisition 3. Improperly collected, labeled, transported or handled irretrievable specimens should be processed. Waiver of responsibility form SCM40110 needs to be filled out by the responsible nurse
4	Label the following media/slides: • BA-C: Blood agar • CHO-C: Chocolate agar • TM-C: Thayer Martin agar • MAC-O: MacConkey agar • BRU-2: Brucella agar • THIO2: Thioglycollate broth • Label the frosted end of a glass microscope slide with the accession number, patient's last name and specimen type • Clean slide with alcohol swab prior to inoculation
5	Inoculate plates with specimen. Refer to MIC10000-Microbiology Specimen Handling.
6	Make Gram stain smear. Refer to MIC10000-Microbiology Specimen Handling.
7	Streak plates for isolation. Refer to MIC10000-Microbiology Specimen Handling.
8	Place MAC plate in the O_2 incubator on "New Urine Culture" shelf.
9	Place BA, CHO and TM plates in the CO_2 incubator on "New Urine Culture" shelf.
10	Place BRU in anaerobic jar or tray with anaerobic pouch and indicator as soon as practical after inoculation. Label jar or tray with date of 48 hour read. Anaerobes should not be exposed to air for 42-48 hours after inoculation. Refer to MIC10000-Microbiology Specimen Handling.
11	Label THIO with Day 2 date and Day 5 date. Place THIO broth in THIO rack in O_2 incubator in "Day 2" row.
12	Gram stain slide. Refer to MIC20100-Gram Stain.

9. PROCEDURE INSTRUCTIONS: GONORRHOEAE CULTURE

Step	Action
1	• Urethra (male specimens only) • Cervix • Throat • Eye • Rectum
2	Specimen can be stored at room temperature or refrigerated.
3	Criteria for rejection: 1. Unlabeled/mislabelled specimen 2. Specimen container label does not match patient identification on requisition
4	Label the following media/slides: • CHO-C: Chocolate agar • TM-C: Thayer Martin agar • If the source is urethra, label the frosted end of a glass microscope slide with the accession number, patient's last name and specimen type **NOTE:** Slides are only made on urethra specimens, not cervix, eye or throat **NOTE:** If gonorrhoeae culture is ordered on throat or eye specimens, full culture along with gonorrhoeae culture will be performed. In order entry, when ordering CXGON, if throat or eye is selected as the source, the throat culture or eye culture is automatically ordered
5	Inoculate plates with specimen. Refer to MIC10000-Microbiology Specimen Handling.
6	If applicable, make Gram stain smear. Refer to MIC10000-Microbiology Specimen Handling.
7	Streak plates for isolation. Refer to MIC10000-Microbiology Specimen Handling.
8	Place CHO and TM plates in the CO_2 incubator on "New Urine Culture" shelf.
9	If applicable, gram stain slide. Refer to MIC20100-Gram Stain.

10. PROCEDURE INSTRUCTIONS: GBS SCREEN

Step	Action
1	• Vaginal-Rectal • Specimen for GBS screening in pregnancy should be collected at 35 to 37 weeks gestation
2	Specimen should be stored at room temperature.
3	Criteria for rejection: 1. Unlabeled/mislabelled specimen 2. Specimen container label does not match patient identification on requisition
4	Label the following media/slides: • LIM-C: LIM broth • GBS-O: StrepB *Select* agar ➢ Attach the GBS-O label to the clip on the front of the BSC
5	Break the swab off into the LIM broth. Recap loosely.
6	Incubate the media as follows: • LIM Broth: CO_2 incubator • This is done by the technologist performing daily shutdown duties
7	After 18-24hr incubation: • Remove the required number of StrepB *Select* agar plates from the refrigerator and bring to room temperature • Label the GBS-O plates with the labels clipped to the BSC • Remove LIM broth from incubator and subculture to the GBS-O plates: ➢ Saturate a sterile swab in the broth and rotate against the wall of the tube above the liquid to remove excess inoculum and swab the first quadrant of the agar ➢ Streak for isolated growth using a disposable inoculation needle ➢ Streak out to cover the whole plate
8	Place GBS plate in the O_2 incubator on "New Urine Culture" shelf.

11. PROCEDURE INSTRUCTIONS: IUD CULTURE

Step	Action
1	Specimen should be refrigerated.
2	Criteria for rejection: 1. Unlabeled/mislabeled specimen. 2. Specimen container label does not match patient identification on requisition.
3	Label the following media/slides: • THIO2: Thioglycollate broth • BRU-2: Brucella agar
4	Add a full tube of thioglycollate broth (not the labelled tube) to the specimen container containing the IUD and vortex for 30 seconds.
5	Using a sterile pipette, transfer the THIO broth into a red top vacutainer tube and centrifuge at 3500 rpm for 10 minutes.
6	After centrifugation is complete, using a STERILE pipette, dispense the fluid sediment as follows (discard supernatant in red top tube): • 1 drop on BRU • 2-5 drops in labelled Thioglycollate broth
7	Streak plates for isolation. Refer to MIC10000-Microbiology Specimen Handling.
8	Label THIO with Day 2 date, Day 5 date and Day 10 date. Place THIO broth in THIO rack in O_2 incubator in "Day 2" row.
9	Place BRU in anaerobic jar or tray with anaerobic pouch and indicator as soon as practical after inoculation. Label jar or tray with date of 48 hour read. Anaerobes should not be exposed to air for 42-48 hours after inoculation. Refer to MIC10000-Microbiology Specimen Handling.
10	Gram stain is not performed. No slide is required.

12. PROCEDURE INSTRUCTIONS: MRSA SCREEN

Step	Action
NOTE: Due to incubation requirements, MRSA plates are set up until 15:00	
1	• Bilateral nasal swab • Bilateral groin swab • Swab specimen from various sources
2	Specimen should be stored at room temperature.
3	Criteria for rejection: 1. Unlabeled/mislabelled specimen 2. Specimen container label does not match patient identification on requisition 3. Duplicate specimens obtained with same collection method from same collection location within 24 hours
4	Label the following media/slides: • MRS-O: MRSA*Select* II agar
5	Inoculate plate with specimen. Refer to MIC10000-Microbiology Specimen Handling.
6	Streak plate for isolation. Refer to MIC10000-Microbiology Specimen Handling.
7	Label the MRS plate with: R: (Date + 1 date) and time incubated.
8	Place MRS plate in the O_2 incubator in MRSA tray.

13. PROCEDURE INSTRUCTIONS: MRO SCREEN

Step	Action
NOTE: Due to incubation requirements, MRO plates are set up until 15:00	
1	• Swab specimen from various sources
2	Specimen should be stored at room temperature.
3	**Criteria for rejection:** 1. Unlabeled/mislabelled specimen 2. Specimen container label does not match patient identification on requisition 3. Duplicate specimens obtained with same collection method from same collection location within 24 hours
4	Label the following media/slides: • MRS-O: MRSA*Select* II agar • VRE-O: VRE*Select* agar
5	Inoculate plates with specimen. Refer to MIC10000-Microbiology Specimen Handling.
6	Streak plates for isolation. Refer to MIC10000-Microbiology Specimen Handling.
7	Label the MRS plate with: R: (Date + 1 date) and time incubated. Label the VRE plate with: R: (Date + 1 date and + 2 date) and time incubated.
8	Place MRS and VRE in the O_2 incubator in MRO tray.

14. PROCEDURE INSTRUCTIONS: NASAL CULTURE

Step	Action
1	• Nose
2	Specimen should be stored at room temperature.
3	Criteria for rejection: 1. Unlabeled/mislabelled specimen 2. Specimen container label does not match patient identification on requisition
4	Label the following media/slides: • BA-C: Blood agar
5	Inoculate plate with specimen. Refer to MIC10000-Microbiology Specimen Handling.
6	Streak plate for isolation. Refer to MIC10000-Microbiology Specimen Handling.
7	Place BA plate in the CO_2 incubator on "New Respiratory Culture" shelf.
8	Gram stain is not performed. No slide is required.

15. PROCEDURE INSTRUCTIONS: ORAL CULTURE

Step	Action
1	• Mouth • Tongue
2	Specimen should be stored at room temperature.
3	Criteria for rejection: 1. Unlabeled/mislabelled specimen 2. Specimen container label does not match patient identification on requisition
4	Label the following media/slides: • SAB-R: Sabouraud dextrose agar
5	Inoculate plate with specimen. Refer to MIC10000-Microbiology Specimen Handling.
6	Streak plate for isolation. Refer to MIC10000-Microbiology Specimen Handling.
7	Label SAB plate with R: (Date + 2 date).
8	Place SAB plate on urine bench and "incubate" at room temperature.
9	Gram stain is not performed. No slide is required.

16. PROCEDURE INSTRUCTIONS: RESPIRATORY CULTURE

Step	Action
1	• Sputum • Endotracheal aspirate • Auger suction • Bronchial aspirates (washings) • Bronchoalveolar lavage (BAL)
2	Specimen should be refrigerated.
3	Criteria for rejection: 1. Unlabeled/mislabelled specimen 2. Specimen container label does not match patient identification on requisition 3. Swabs of sputa 4. Duplicate specimens obtained with the same collection method within 24 hours 5. Leaking specimens 7. Improperly collected, labeled, transported or handled bronchial aspirate (wash specimens), BAL specimens, lung aspirates and lung biopsy specimens should be processed. Waiver of responsibility form SCM40110 needs to be filled out by the responsible nurse
4	Label the following media/slides: • BA-C: Blood agar • CHO-C: Chocolate agar • MAC-O: MacConkey agar • Label the frosted end of a glass microscope slide with accession number, patient's last name and specimen type
5	Inoculate plates with specimen. Refer to MIC10000-Microbiology Specimen Handling.
6	Make Gram stain smear. Refer to MIC10000-Microbiology Specimen Handling.
7	Streak plates for isolation. Refer to MIC10000-Microbiology Specimen Handling.
8	Place MAC plate in the O_2 incubator on "New Respiratory Culture" shelf.
9	Place BA and CHO plates in the CO_2 incubator on "New Respiratory Culture" shelf.
10	Gram stain slide. Refer to MIC20100-Gram Stain.

17. PROCEDURE INSTRUCTIONS: THROAT CULTURE

Step	Action
1	• Throat swab
2	Specimen should be stored at room temperature.
3	Criteria for rejection: 1. Unlabeled/mislabelled specimen 2. Specimen container label does not match patient identification on requisition 3. Duplicate specimens obtained with same collection method within 24 hours
4	Label the following media/slides: • BA-2: Blood agar
5	Inoculate plate with specimen. Refer to MIC10000-Microbiology Specimen Handling.
6	Streak plate for isolation. Refer to MIC10000-Microbiology Specimen Handling.
7	Place BA plate in "For throat jar" rack in the CO_2 incubator.
8	Gram stain is not performed. No slide is required.

18. PROCEDURE INSTRUCTIONS: TIP CULTURE

Step	Action
1	• Intravascular catheters including: central, CVC, Hickman, Broviac, peripheral, arterial, jugular, femoral, subclavian, umbilical, hyperalimentation, hemodialysis, port-a-cath and swan-Ganz
2	Specimen should be refrigerated.
3	Criteria for rejection: 1. Unlabeled/mislabelled specimen 2. Specimen container label does not match patient identification on requisition 3. Foley catheter tips are not acceptable for culture-request a urine specimen 4. Chest tube tips 5. Abdominal drain tips 6. Catheter tips should not be placed in saline or transport medium
4	Label the following media/slides: • BA-C: Blood agar • MAC-O: MacConkey agar
5	Using a sterile needle or loop, roll the segment back and forth 4 times across the surface of the Blood agar plate followed by the MacConkey plate. **NOTE:** If the tip is too long, cut the proximal end with sterilized scissors prior to rolling onto plates
6	Place MAC plate in the O_2 incubator on "New Wound Culture" shelf.
7	Place BA plate in the CO_2 incubator on "New Wound Culture" shelf.
8	Gram stain is not performed. No slide is required.

19. PROCEDURE INSTRUCTIONS: Toxigenic *C.difficile*

Step	Action
1	• Refer to MIC10300-Xpert C.difficile

20. PROCEDURE INSTRUCTIONS: *Trichomonas vaginalis* screen

Step	Action
1	• Refer to MIC10350-OSOM *Trichomonas* Rapid Test

21. PROCEDURE INSTRUCTIONS: URINE CULTURE

Step	Action
NOTE: Due to incubation requirements, urine plates are set up until 15:00	
1	• Fresh urine collected in sterile container • Fresh urine collected in urine transport tube
2	• Urine in sterile container should be refrigerated • Urine in urine transport tube can be kept at room temperature or refrigerated
3	Criteria for rejection: 1. Unlabeled/mislabelled specimen 2. Specimen container label does not match patient identification on requisition 3. Duplicate specimens obtained with the same collection method within 24 hours 4. Refrigerated fresh urine specimens received >24 hours after collection 5. 24-hour urine collections 6. Foley catheter tips 7. Specimens in leaking container
4	Label the following media/slides: • UR1-O: Uri*Select* 4 agar for non-sterile urine specimens • UR2-O: Uri*Select* 4 agar for sterile urine specimens **NOTE:** Highlight urine type on plate if UR2-O
5	Inoculate plate with specimen. Refer to MIC10000-Microbiology Specimen Handling.
6	Streak plate for isolation. Refer to MIC10000-Microbiology Specimen Handling.
7	Place URI plate in the O_2 incubator on "New Urine Culture" shelf. **NOTE:** Place plates in the incubator as soon as practical after inoculation

22. PROCEDURE INSTRUCTIONS: VRE SCREEN

Step	Action
NOTE: Due to incubation requirements, VRE plates are set up until 15:00	
1	• Swab specimen • Stool specimens
2	Specimen should be stored at room temperature.
3	Criteria for rejection: 1. Unlabeled/mislabelled specimen 2. Specimen container label does not match patient identification on requisition 3. Duplicate specimens obtained with same collection method from same collection location within 24 hours 4. Nasal and axilla swabs should not be processed for VRE 5. For swabs not visibly soiled with fecal matter, add specimen quality comment **VRE** to state**: "No fecal matter visible on swab"**
4	Label the following media/slides: • VRE-O: VRE*Select* agar
5	Inoculate plates with specimen. Refer to MIC10000-Microbiology Specimen Handling.
6	Streak plates for isolation. Refer to MIC10000-Microbiology Specimen Handling.
7	Label the VRE plate with: R: (Date + 1 date + 2 date) and time incubated.
8	Place VRE plate in the O_2 incubator in VRE tray.

23. PROCEDURE INSTRUCTIONS: WET PREP SCREEN

Step	Action
1	• Urethra (male and female)
2	Specimen should be stored at room temperature.
3	Criteria for rejection: 1. Specimen is >72 hours old. Refer to MIC10110-Bacterial Vaginosis Specimen Processing Job Aid 2. Unlabeled/mislabelled specimen 3. Specimen container label does not match patient identification on requisition 4. Duplicate specimens obtained with same collection method within 24 hours
4	Label the following media/slides: • WPGS: Glass test tube
5	Place labeled glass test tube into a rack and add approximately 0.5 mL of saline.
6	Place the culture swab into the saline and mix. Place the swab transport tube in the slot behind the glass test tube.
7	Incubate in the O_2 incubator for at least 15 minutes.
8	Let the microbiology technologists know that wet preps have gone into the incubator.

24. PROCEDURE INSTRUCTIONS: WOUND CULTURE

a. Superficial Wound

Step	Action
1	1. Superficial wound specimens: ➢ Abrasion, cut, laceration, ulcer, skin diseases (impetigo, folliculitis, cellulitis), first degree burn, superficial surgical incision, etc. 2. Superficial specimens: ➢ Boils, cyst, etc. 3. Drain specimens: ➢ J-tubes, G-tubes, chest tube, abdominal, etc.
2	Specimen should be stored at room temperature.
3	Criteria for rejection: 1. Unlabeled/mislabelled specimen 2. Specimen container label does not match patient identification on requisition 3. Specimens for culture submitted in container with formalin. 4. Submission of specimens to determine *if* an infection is present should be discouraged
4	Label the following media/slides: • BA-C: Blood agar • CNA-C: Colistin-nalidixic acid agar • MAC-O: MacConkey agar • Label the frosted end of a glass microscope slide with accession number, patient's last name and specimen type
5	Inoculate plates with specimen. Refer to MIC10000-Microbiology Specimen Handling.
6	Make Gram stain smear. Refer to MIC10000-Microbiology Specimen Handling.
7	Streak plates for isolation. Refer to MIC10000-Microbiology Specimen Handling.
8	Place BA and CNA plates in the CO_2 incubator on "New Wound Culture" shelf.
9	Place MAC plate in the O_2 incubator on "New Wound Culture" shelf.
10	Gram stain slide. Refer to MIC20100-Gram Stain.

b. Deep Wound

Step	Action
1	• Swab • Aspirate/drainage/pus received in sterile container
2	Specimen should be stored at room temperature.
3	Criteria for rejection: 1. Unlabeled/mislabelled specimen 2. Specimen container label does not match patient identification on requisition 3. Specimens for culture submitted in container with formalin
4	Label the following media/slides: • BA-C: Blood agar • CHO-C: Chocolate agar • CNA-C: Colistin-nalidixic acid agar • MAC-O: MacConkey agar • BRU-2: Brucella agar • KV-2: Anaerobic KV agar • Label the frosted end of a glass microscope slide with the accession number, patient's last name and specimen type
5	Inoculate plates with specimen. Refer to MIC10000-Microbiology Specimen Handling.
6	Make Gram stain smear. Refer to MIC10000-Microbiology Specimen Handling.
7	Streak plates for isolation. Refer to MIC10000-Microbiology Specimen Handling.
8	Place MAC plate in the O_2 incubator on "New Wound Culture" shelf.
9	Place BA and CHO plates in the CO_2 incubator on "New Wound Culture" shelf.
10	Place BRU and KV in anaerobic jar or tray with anaerobic pouch and indicator as soon as practical after inoculation. Label jar or tray with date of 48 hour read. Anaerobes should not be exposed to air for 42-48 hours after inoculation. Refer to MIC10000-Microbiology Specimen Handling.
11	Gram stain slide. Refer to MIC20100-Gram Stain.

25. PROCEDURE INSTRUCTIONS: YEAST CULTURE

Step	Action
1	• Anal • Cervix • Penis • Vagina **NOTE:** Refer to MIC10110-Bacterial Vaginosis Specimen Processing Job Aid for yeast culture ordered on vaginal swabs
2	Specimen should be stored at room temperature.
3	Criteria for rejection: 1. Unlabeled/mislabelled specimen 2. Specimen container label does not match patient identification on requisition
4	Label the following media/slides: • SAB-R: Sabouraud dextrose agar
5	Inoculate plate with specimen. Refer to MIC10000-Microbiology Specimen Handling.
6	Streak plate for isolation. Refer to MIC10000-Microbiology Specimen Handling.
7	Label SAB plate with R: (Date + 2 date).
8	Place SAB plate on urine bench and "incubate" at room temperature.
9	Gram stain is not performed. No slide is required.

CROSS-REFERENCES:

- MIC10000-Microbiology Specimen Handling
- MIC10110-Bacterial Vaginosis Specimen Processing Job Aid
- MIC20100-Gram Stain
- MIC60010-Microbiology Quality Control procedure
- MIC60040-Culture Media Quality Control procedure
- MIC71000-BACTEC FX Instrument
- SCM40100-Specimen Acceptance and Rejection Policy
- SCM40110-Waiver of Responsibility Form

REFERENCES:

1. Leber, A. (2016). *Clinical microbiology procedures handbook.* (4th ed.) Washington, D.C.: ASM Press
2. Jorgensen J.H., Pfaller M.A., Carroll K.C., Funke G., Landry M.L., Richter S.S., Warnock D.W. (2015). *Manual of Clinical Microbiology, 11th edition*. Washington, D.C: ASM Press

APPROVAL:

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Date

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REVISION HISTORY:

REVISION	DATE	Description of Change	REQUESTED BY
1.0	11 Aug 2013	Initial Release	A. Darrach
2.0	12 Feb 2019	Update to reflect 2 VRE and MRO samples per plate	L. Steven
3.0	10 Jun 2019	Update to reflect new urine chromogenic agar	L. Steven
4.0	27 Feb 2020	Procedure reviewed	L. Steven
5.0	30 Jan 2022	Procedure reviewed and added to NTHSSA policy template	L. Steven