PURPOSE: Blood cultures are collected from patients with suspected sepsis or bacteremia. The isolation of any organism(s) from a blood culture must be considered significant and correlated with the clinical picture. Although primarily directed towards the processing of blood cultures, occasionally other specimen types (sterile fluids, abscess material, bone marrow, etc.) are received in blood culture vials. These bottles may be processed in the same manner as blood cultures.

The BACTEC FX instrument continuously monitors routine blood cultures for evidence of growth for 5 days. Negative results are auto verified as follows:

- No growth in 48 hours (preliminary)
- No growth in 5 days (final)

SAMPLE INFORMATION:

Type	Blood culture vial
Source	Blood or sterile fluid

REAGENTS and/or MEDIA:

Type	• BACTEC™ Plus Aerobic/F Culture Vials (blue top) • BACTEC™ Lytic/10 Anaerobic/F Culture Vials (purple top) • BACTEC™ Peds Plus™/F Culture Vials (pink top)
Source	Becton Dickinson
Volume	1 vial
Stability	Stable until date of expiration indicated on vial
Storage Requirements	Bottle storage before blood collection: • Room temperature
Criteria for rejection and follow up action	Do not use if: • The expiration date has passed • There are other signs of deterioration

SUPPLIES:

- BACTEC FX instrument

SPECIAL SAFETY PRECAUTIONS:

Containment Level 2 facilities, equipment, and operational practices for work involving infectious or potential infectious materials or cultures.

- 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.

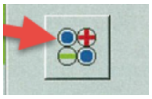
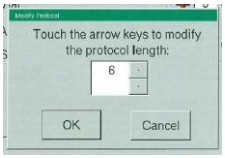
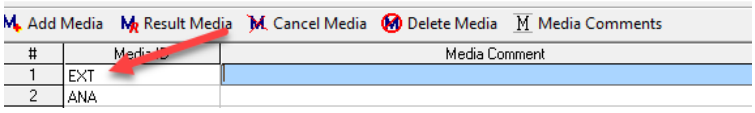
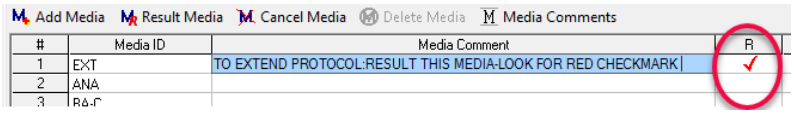
All patient specimens are assumed to be potentially infectious. Universal precautions must be followed. Since viable micro-organisms are used, all cultures must be handled with appropriate precautions. All equipment in contact with cultures should be decontaminated by appropriate methods.

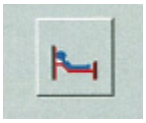
QUALITY CONTROL:

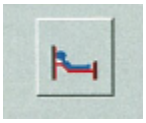
- Refer to MIC60010 – Microbiology Quality Control for quality control procedures.

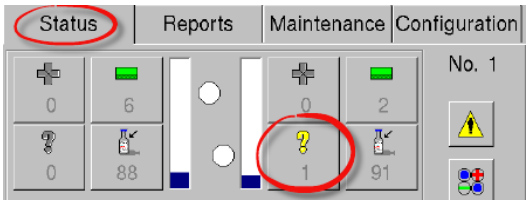
PROCEDURE INSTRUCTIONS:

Step	Action
Loading vials into the BACTEC FX	
1	Open the drawer. Ensure that the "Status" screen is displayed and the barcode scanner turns on.
2	Scan the vial sequence barcode (vial barcode) and the accession barcode (LIS label).
3	Place the vial into any available slot (solid green light) in the instrument.
4	Scan and place any other bottles that need to be loaded.
5	Close drawer when finished.
6	Delayed entry of bottles may lead to delayed results. Best practices dictate that bottles should be placed into the BACTEC as soon as possible after collection. If a delay was identified: • Visually inspect the bottle. If growth is apparent, treat as presumptively positive. Do not place bottle into the BACTEC. Subculture and make a smear for Gram-staining. • If the Gram-stain is negative and the bottle has been kept at room temperature for up to 48 hours, it can be placed into the BACTEC.

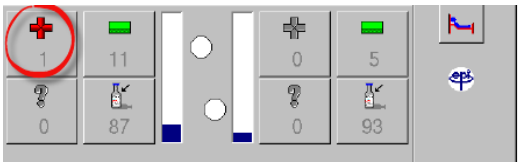
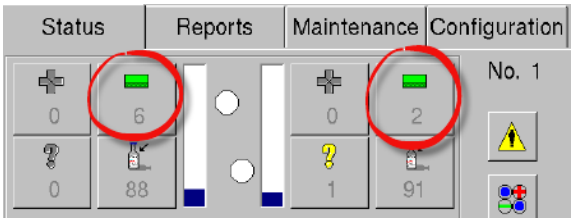
Step	Action
Extending incubation time of vials to 10 days	
1	**In the BACTEC:** 1. From the "Status" screen on the BACTEC, tap the "Drawer View" button.  2. Select the desired station and select "OK". 3. Select "Modify" next to the Protocol field and the "Modify Protocol" box pops up.  4. Change the protocol to 10 days and select "OK". 5. Select "Save" to save the changes.
2	**In the LIS:** • Result Entry → Scan the order number to access the plate log/test comments: • If a CXSET requires extended protocol (two vials under one order number), both bottles will need to be modified. 1. In plate log (Media Comments), look for the "EXT" media ID:  2. Double click in the resulted box (R) for the EXT Media ID so that a red check mark appears in the resulted box for EXT:  **This alerts the LIS to stop the 5 day reporting and change it to 10 day reporting.** 3. Save the order to save the changes made.
3	If culture is negative: • A 48 hour negative preliminary report will be automatically released by LIS. • A 10 day no growth final report will automatically be released. • Manual reporting negative bottles on extended protocol is not required.

Step	Action
Disassociating vials	
1	If a vial record contains an accession number, it is considered associated to that accession. The “disassociate” function enables you to break the link between a vial and an accession number. This can be useful when troubleshooting sample errors.
2	From the status display, tap the “Culture” button: 
3	The “Culture-Patient” display appears.
4	Tap the “Vial” tab to access the “Culture-Vial” display.
5	Scan the sequence number (bottle barcode) of the vial.
6	Tap the “Disassociate” button to disassociate the vial from the accession number.
7	Return to the “Status” display.
8	Open the drawer and proceed to load the vial into the instrument.
9	Scan the bottle barcode and then scan the accession barcode.
10	Place the bottle in any available slot in the instrument.

Step	Action
Associating vials	
1	If a vial has been loaded into the instrument without an accession number, the vial needs to be associated with the accession number.
2	From the status display, tap the “Culture” button: 
3	The “Culture-Patient” display appears.
4	Tap the “Specimen” tab to access the “Culture-Specimen” display.
5	In the accession field, scan the accession number.
6	Scan the vial sequence barcode you want to attach.
7	Tap the “Save” button to save the association.

Step	Action
Anonymous vials	
1	Vials can be placed into available (Green) stations without being scanned into the instrument. This is usually done during the evening when the PCC or core lab technologist is unable to accession the sample after it is collected. Vials that are not scanned into the instrument are called “anonymous”vials.
2	Select the drawer that has anonymous station(s). The “Status” screen will indicate which drawer houses the anonymous vial. • *Example below: 1 Anonymous Vial is in Drawer B, zero Anonymous Vials in Drawer A.* 
3	Open the drawer and locate station(s) with a flashing Yellow LED. If the station flashes YELLOW and RED, then the vial is also POSITIVE. Remove the vial.
4	The “ID Annonymous” display appears and the barcode scanner turns on.
5	Ensure the vial has an accession barcode. If not, accession the sample and place the barcode on the vial.
6	Scan the vial sequence barcode (vial barcode) and the accession barcode.
7	Place the vial in the FLASHING GREEN station (station from which the vial was pulled).
8	Repeat with any additional anonymous vials.

IF	ACTION
Resolving BACTEC FX System Indicator Warnings	
Yellow light:	**Power failure/Communication interruption (most common cause):** Check instrument for error message: • BACTEC FX Touch screen → Status tab • Touch the ⚠ button and view the Alert List. Power interruptions will display the following alerts: "**Reboot Reason: Powerfail**", "**The instrument has lost connectivity to the server**", "**EpiCenter Communications failure**". • Alerts other than those above → Refer to BACTEC FX User Training Manual. Log into Epicentre computer: • Log-in to Windows (password taped to computer). When power goes out, Windows will re-boot and require re-login again. • Icon will display:  Communication should RESYNC  after logging into Windows (should take about one minute after logging in). • A System Message window should pop-up displaying the errors. Click the "x" button to close or delete them • The yellow system indicator lights on BACTEC door will stop glowing. If communication does not automatically RESYNC, re-SYNC manually: • In Windows, double-click on the EpiCenter icon and log-in (password taped to computer). • System will cycle through icons:  →  →  and automatically re-establish communication with BACTEC. • Once EpiCenter resynchronizes with the BACTEC, the yellow system indicator lights on BACTEC door will stop glowing. (Communication/Resync between BACTEC and EpiCenter is OK).

Red light	**Positive vial:** 1. Select the drawer that has the positive station(s). The "Status" screen will indicate which drawer houses the positive vial. • *Example below: 1 Positive Vial is in Drawer A, no Positive Vials in Drawer B:*  2. Open the drawer. The barcode scanner turns on. 3. Remove the positive vial (flashing red). 4. The "Positive Removal" display appears. Scan the vial sequence barcode (vial barcode). You must scan each positive vial that you pull out in order for the instrument to re-light positive stations. 5. When all positive vials are removed from the drawer, the "Activity Complete" tone sounds. 6. Positive vials may be returned to the BACTEC RX if no bacteria are seen in the gram-stain for up to 5 hours after the vial has been removed.
Green light	**Negative vial:** 1. Select the drawer that has the negative station(s). The "Status" screen will indicate which drawer houses the negative vial(s). • *Example below: 6 Negative Vials are in Drawer A and 2 a Negative Vials are in Drawer B.*  2. Open the drawer. Remove the negative vials from the FLASHING GRENN stations. These vials do not have to be scanned (and the scanner does not turn on). Any vials left in the instrument remain in the database as negatives. 3. Counters on the display are updated dynamically as vials are removed. 4. When all negative vials are removed from the drawer, the "Activity Complete" tone sounds.

REFERENCES:

- BACTEC FX Instrument User Manual, 2011/02

REVISION HISTORY:

REVISION	DATE	Description of Change	REQUESTED BY
1.0	06-Nov-17	Initial Release	L. Steven
2.0	26-Mar-19	Updated to reflect addition of disassociating and associating vials	L. Steven