PROGRAM Standard Operating Procedure – Laboratory Services	
Title: MIC70300 – Vitek 2 Maintenance	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:
The Vitek 2 Instrument, personal computer (PC), Smart Carrier Station, Densichek and saline dispensette are used with Vitek 2 identification and susceptibility cards to provide information to aid the clinician in the treatment of disease. Maintenance is performed to ensure accuracy and precision of the various components of the Vitek 2 Instrument.

PURPOSE/RATIONALE:
This standard operating procedure describes the daily, weekly, monthly and as-required maintenance requirements for the Vitek 2.

SCOPE/APPLICABILITY:
This procedure applies to Medical Laboratory Technologists (MLTs) processing specimens using the Vitek 2.

REAGENTS and/or MEDIA:
- 1 tube of Thioglycolate Broth
- DensiCHEK calibration standards

SUPPLIES:
- Disposables: saline and tubing, pipette tips
- 10% bleach solution
- Gauze squares
- Dish soap
- DensiCHEK plus

EQUIPMENT

- Saline dispensette
- Smart Carrier Station and cassettes
- Vitek 2 Instrument, PC, optics, boats and carousels
- Printer

SPECIAL SAFETY PRECAUTIONS:

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

- Ensure that appropriate hang 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 MIC60030-Vitek 2 Quality Control for Vitek 2 QC procedures
- Record all Vitek 2 QC results on MIC60032-Vitek 2 Quality Control Results Record
- Record all actions and results of maintenance checks on MIC70310-Maintenance Record-Vitek 2

PROCEDURE INSTRUCTIONS:

Step	Action
Daily Vitek 2 Maintenance	
1	**Empty waste trays:** • Open the waste collection station door • Place the index finger of one hand on the sliding retainer bar • Remove the waste collection tray from the station by lifting the front edge of the tray slightly and then pulling it toward you • When the tray is clear of the station, allow the sliding retainer bar to slowly slide back into place • Dispose of the test cards in the tray in the biohazard garbage and replace the tray

2	**Status Check:** • Ensure the status on the Status Screen is OK before using the instrument • If the Status is not OK, refer to Vitek 2 Instrument User Manual sections 8-2 to 8-12, for detailed information on other status notifications • Monitor the disposables. As the two disposables are used, the shaded portion of the graphs moves to the left. At the same time, the value inside the graph decreases correspondingly. The graphs are marked to show full (330), three-quarter (248), one-half (165), and one-quarter (83) capacity. If the level of either disposable drops below 40, the value changes to Low. The graphs and their values refer specifically to the number of antimicrobial susceptibility tests (AST) that can be processed • Saline and tips are changed monthly or as required
3	**Zero DensiCHEK:** • Refer to MIC70100-DensiCHEK plus for DensiCHEK maintenance
4	**Check printer paper:** • Refill paper as necessary

Step	Action
Weekly Vitek 2 Maintenance	
1	**Check sterility of the Vitek saline dispensette in use:** • Accession and process specimens as per MIC70200-Dispensette Sterility Test • If the sterility test fails, dispensette needs to be autoclaved and saline discarded as per procedure

Step	Action
Monthly Vitek 2 Maintenance	
1	**Vitek 2 Instrument:** Perform monthly maintenance in the morning once all cards have been processed and before new cards are loaded. The maintenance is done in two parts. The first part is done with the instrument "ON" and the second part is done with the instrument "OFF" • **"INSTRUMENT ON":** ➢ Remove the carousels and boats. Refer to Vitek 2 Instrument User Manual sections 6-19 to 6-26 and 6-28 to 6-31. There are two complete sets of carousels and boats. The extra set of each is stored beneath the Vitek 2 ➢ After the carousels and boats have been removed, shut down the instrument using the interface screen ➢ The instrument must be shut down and switched off before continuing

	• **"INSTRUMENT OFF":** ➢ Shut down the instrument. Refer to Vitek 2 Instrument User Manual section 5-2 ➢ After the instrument is shut down, clean the OPTICS, VACUUM SEAL, VACUUM CHAMBER, WASTE TRAY, BASE PAN and DRIP PAN with a solution containing a small amount of dish soap and bleach. Refer to Vitek 2 Instrument User Manual sections 6-34 to 6-40 ➢ After the interior components have been cleaned, turn the power to the analyzer back on using the power switch located on the bottom, left hand side. The instrument will go through an initialization and/or warm up. When this is complete, the instrument will ask you to replace the carousels. Refer to Vitek 2 Instrument User Manual sections 6-23 to 6-26. After the carousel replacement, the boats need to be replaced. Refer to Vitek 2 Instrument User Manual sections 6-30 to 6-31. Next, perform the Optical Diagnostic Test. Refer to Vitek 2 Instrument User Manual sections 6-18 to 6-19 **NOTE:** Once maintenance is complete and instrument is back into use, take the dirty carousels and boats to MDR to be run through the dishwasher
2	**Clean exterior components:** • Clean Vitek 2 instrument, computer and keyboard with a solution containing a small amount of dish soap and bleach
3	**Smart Carrier Station (SCS):** • Turn OFF the SCS before beginning • Clean the base unit, keypad, display and barcode scanner (except the clear lens) monthly or as needed with a solution containing a small amount of dish soap and bleach • Use glass cleaner and lens paper to clean the lens of the barcode scanner
4	**Smart Carrier Station Cassettes:** • Remove memory buttons from cassettes before cleaning - liquid should NEVER make contact with the memory buttons. Take the dirty cassettes to MDR to be run through the dishwasher
5	**DensiCHEK:** • Refer to MIC70100-DensiCHEK plus for DensiCHEK monthly maintenance procedure
6	**Change pipette tips and saline bag:** • Refer to Vitek 2 Instrument User Manual sections 6-9 to 6-14. After changing the tips and saline, the instrument will perform a pipetter self-test
7	**Dispenser/Pipetter Diagnostic Test:** • Perform a Dispenser/Pipetter Diagnostic Test after each replacement of saline and tips. Follow the procedures in the Vitek 2 Instrument User Manual section6-16. If any of the abnormal conditions are observed discontinue using Automatic Dilution Mode and contact bioMérieux

Step	Action
As-Required Vitek 2 Maintenance	
1	**Change dispensette saline bottles:** • Continue to use the same dispensette as long as the weekly sterility checks show no growth • When saline dispensette sterility test fails, refer to MIC70200-Dispensette Sterility Test
2	**After installation of software updates**: • Perform quality control of Gram-negative and Gram-positive susceptibility cards. Refer to MIC60030-Vitek 2 Quality Control • Record results on MIC60032-Vitek 2 Quality Control Results Record
3	**How to shut down the Vitek 2 PC:** • Minimize Vitek session • Click on Start (lower left corner of screen) • Click on Shut down • Follow prompts to shut down • When powering back up, allow to reboot and log on

Step	Action
What to do if the Pipettor/Dilutor is DOWN:	
1	Configure the SCS to the "Pre-Diluted" mode using the F4 key.
2	Prepare organism suspensions within 0.5-0.63 McFarland range as usual.
3	If setting up ID and susceptibility cards place the McFarland suspension in the cassette and leave the next slot empty. Prepare a second tube with the following dilutions using the Vitek pipettes: • AST-GN: 3.0mL saline + 145µL of 0.5-0.63 ID suspension • AST-GP: 3.0mL saline + 280µL of 0.5-0.63 ID suspension Place the dilution into the empty slot.
4	If setting up a susceptibility card only, place the dilution only in the cassette. Do not place the McFarland suspension in the cassette.
5	Enter the barcode number of the isolate and scan the barcodes of the Vitek 2 cards into the SCS. Place the cards in the appropriate slots in the cassette.
6	Load the cassette onto the instrument. The button memory will communicate to the VITEK 2 instrument that the AST dilutions are already prepared.

Step	Action
How to import new cards into the Vitek 2:	
1	At the Vitek PC, go to the QC menu. Click on the truck.
2	Enter the lot number of the new cards and the number of boxes received. Click OK.

CROSS-REFERENCES:

- MIC60030-Vitek 2 Quality Control
- MIC60032-Vitek 2 Quality Control Results Record
- MIC70100-DensiCHEK plus
- MIC70200-Dispensette Sterility Test
- MIC70310-Maintenance Record-Vitek 2

REFERENCES:

1. bioMérieux Vitek 2 Instrument User Manual, 510731-10EN1, 2014-02
2. bioMérieux Vitek 2 Product Information Manual, 514740-3EN1, 2016-01

APPROVAL:

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Date

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REVISION HISTORY:

REVISION	DATE	Description of Change	REQUESTED BY
1.0	17 Nov 17	Initial Release	L. Steven
2.0	18 May 21	Procedure reviewed and added to NTHSSA policy template	L. Steven