PROGRAM Standard Operating Procedure – Laboratory Services	
Title: MIC70100 – DensiCHEK plus	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:	

GUIDING PRINCIPLE:
The Vitek DensiCHEK plus instrument measures microorganism suspensions for AST and ID testing in support of the VITEK 2 System. It measures the McFarland value of a suspension prepared in 0.45-0.50% saline in a polystyrene test tube.

The DensiCHEK plus provides an easier way to create a standardized microorganism suspension for improved efficiency in setting up VITEK 2 test cards and assists the Laboratory Technologist in easily and accurately preparing a standardized McFarland microorganism suspension.

PURPOSE/RATIONALE:
To provide instructions on the use of the DensiCHEK plus and maintenance procedures applicable to the device.

SCOPE/APPLICABILITY:
This procedure applies to Medical Laboratory Technologists (MLTs) using the DensiCHEK plus.

SUPPLIES:
- Alkaline AAA batteries

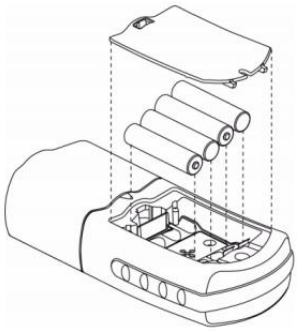
EQUIPMENT
- DensiCHEK plus

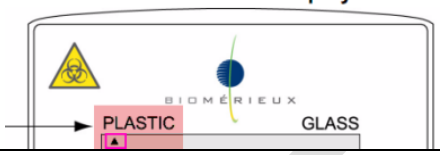
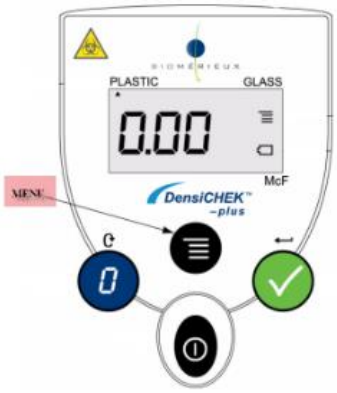
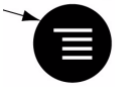
QUALITY CONTROL:

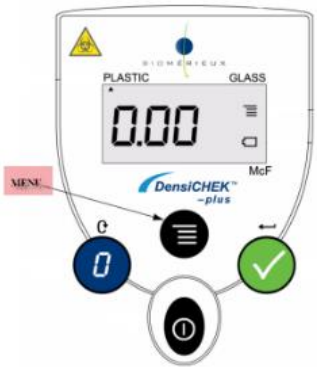
- The DensiCHEK plus should be zeroed every day to ensure accurate results are obtained throughout the day

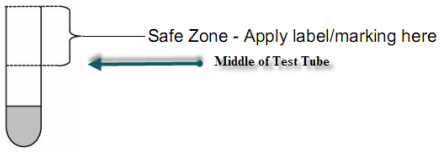
PROCEDURE INSTRUCTIONS:

Step	Action
DensiCHEK plus Cleaning	
1	Prepare a 10% bleach solution. **DO NOT** USE ALCOHOL**
2	Wipe the surface of the DensiCHEK plus with the bleach solution.
3	Remove the adaptor and soak in the 10% bleach solution.
4	Use a swab dipped in 10% bleach solution to clean the reading chamber surfaces.
5	Rinse the adaptor in plain water and fully dry before re-inserting into the instrument.
6	Perform calibration check.

Step	Action
Replacing the batteries	
1	The instrument runs on 4 alkaline AAA batteries. The batteries should be replaced as soon as the low battery icon starts to display.
2	Notice the low battery icon at the bottom left of the instrument window: 
3	Obtain 4 alkaline AAA Batteries. These can be ordered from stores. **NOTE: DO NOT USE HIGH ENERGY TYPE BATTERIES SUCH AS LITHIUM OR NiCad**
4	Insert batteries respecting the correct polarities indicated inside the battery compartment: 
5	Turn on the instrument and ensure the instrument is set to the proper tube type needed.

Step	Action
Selecting a tube type (glass or plastic)	
1	**NOTE: Users MUST ensure the instrument is set to the appropriate tube type prior to use. Failure to do this can lead to severe patient result errors**
2	Turn-on the instrument and look for a black triangle on the screen to determine the currently selected tube type. The black triangle will be pointing towards the current setting (glass or plastic) 
3	To begin changing the setting, press the menu key ONCE.  The screen will display the words **SEL** and the black triangle will be flashing below the current setting.
4	Press the read/enter key to toggle the triangle between settings. 
5	When you have the black triangle below the desired heading press the menu key once. 
6	Check the main screen to ensure the tube type setting is correct.

Step	Action
Zeroing the DensiCHEK plus	
1	Turn the power **on**
2	ENSURE THE TUBE TYPE SETTING IS CORRECT.
3	Choose a plastic test tube that is free from scratches and add 3 mL sterile saline.
4	Insert test tube into instrument.
5	Press the ZERO/SCROLL key and slowly rotate the test tube.  Ensure one full rotation is completed before the reading is displayed. The instrument will display a series of dashes followed by 0.00.

Step	Action
Preparing Patient Samples	
1	Turn the power **on**. The instrument should be set to **PLASTIC.**
2	Ensure the instrument has been zeroed for the plastic setting.
3	Select a clean plastic test tube free from scratches and ensure that no labeling is placed on the tube within the instruments' reading zone. 
4	Fill the test tube with 3.0mL of sterile saline and inoculate with colonies as per established procedures for Vitek card being used.
5	With the instrument **ON**, place tube in instrument and rotate slowly. Ensure one full rotation is completed before the reading is displayed. The instrument will display a series of dashes followed by a reading.
6	Check that the McFarland value is within the acceptable range for card type.
7	Adjust suspension if necessary. **NOTE: If the instrument flashes 0.00 or 4.00, the suspension is outside the readable range of the instrument.**
8	Repeat steps for each new patient suspension.

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td colspan="2">Monthly DensiCHEK plus Calibration</td></tr>
<tr><td>1</td><td>Set the tube type to GLASS.</td></tr>
<tr><td>2</td><td>Gently invert the 0.0 McFarland Standard several time then insert into instrument.
DO NOT USE VORTEXER: AIR BUBBLES WILL AFFECT READING</td></tr>
<tr><td>3</td><td>Zero the instrument using the Zeroing key.</td></tr>
<tr><td>4</td><td>Read each standard by gently inverting to mix, cleaning outside of tube with kim wipe, inserting into instrument and rotating one full turn.
Ensure the values obtained are within acceptable range.
<table>
<tr><th>Standard</th><th colspan="2">Acceptable Range</th></tr>
<tr><td>0.5 McF</td><td>0.44</td><td>0.56</td></tr>
<tr><td>2.0 McF</td><td>1.85</td><td>2.15</td></tr>
<tr><td>3.0 McF</td><td>2.79</td><td>3.21</td></tr>
</table></td></tr>
<tr><td>5</td><td>Enter results onto MIC70310-Maintenance Record-Vitek 2. If results are out of range notify the Technical Supervisor.</td></tr>
<tr><td>6</td><td>After calibration is complete, ensure the tube type is changed back to plastic for daily use.</td></tr>
</table>

CROSS-REFERENCES:

- MIC70310-Maintenance Record-Vitek 2

REFERENCES:

1. bioMerieux. (2018-11). *Vitek DensiCHEK plus User Manual*, 048641-01-en

APPROVAL:

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Date

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REVISION HISTORY:

REVISION	DATE	Description of Change	REQUESTED BY
1.0	17 Sep 12	Initial Release	M-L Dufresne
2.0	15 Feb 17	Update format and new instrumentation	L. Steven
3.0	04 Jun 21	Procedure reviewed and added to NTHSSA policy template	L. Steven