PROGRAM Standard Operating Procedure – Laboratory Services	
Title: MIC70400 – Vitek 2 GN, GP, AST-N390 and AST-GP67 Cards	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:
Vitek 2 Gram-negative (GN) and Gram-positive (GP) identification cards are based on 43 to 47 established biochemical tests and substrates measuring carbon source utilization, enzymatic activities and resistance. Results are available in approximately 8-10 hours or less.

Vitek 2 antimicrobial susceptibility test (AST) cards are intended for use with the Vitek 2 System for the automated quantitative and qualitative antimicrobial susceptibility testing of most clinically significant aerobic or facultative Gram-negative bacilli, *Staphylococcus* species, *Enterococcus* species and *Streptococcus* species. Minimum inhibitory concentrations (MICs) are determined using antimicrobial concentrations derived from serial twofold (doubling) dilutions. The lowest concentration that exhibits inhibition of growth is considered to be the MIC. An interpretive criterion (Susceptible, Intermediate, or Resistant) is assigned to MIC results, based on CLSI guidelines, to aid in the direction of therapy.

PURPOSE/RATIONALE:
To provide instructions on setting up Vitek 2 GN, GP, AST-N390 and AST-GP67 cards.

SCOPE/APPLICABILITY:
This procedure applies to Medical Laboratory Technologists (MLTs) using the GN, GP, AST-N390 and AST-GP67 cards on the Vitek 2 instrument**.**

SAMPLE INFORMATION:

Type	Gram-negative and Gram-positive organisms
Source	18 to 24 hour culture

REAGENTS and/or MEDIA:

Type	Vitek 2 GN cards, GP cards, AST-N390 and AST-GP67 cards
Stability	Stable until date of expiration indicated on the container
Storage Requirements	Store at 2°C to 8°C
Criteria for rejection	Do not use if: • The expiration date has passed • There are other signs of deterioration

SUPPLIES:

- 0.45% Saline
- Plastic Vitek tubes and caps
- Sterile swabs
- Vitek 2 supplies

EQUIPMENT

- Vortex
- Smart Carrier Station and cassettes
- Vitek 2 instrument

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 results on MIC60032-Vitek 2 Quality Control Results Record

PROCEDURE INSTRUCTIONS:

Step	Action
Setting up GN, GP, AST-GN22 and AST-GP67 cards on Vitek 2	
1	At the SMART CARRIER STATION (SCS): • Ensure that Smart Carrier Station is on • Place cassette on the Smart Carrier Station • Press F1 to erase cassette memory • Cassette ID is SCS and Tech ID is HAWK • At Bench ID type in bench you are working on: urine, wound or QC
2	At Lab ID: scan or type in lab accession barcode number. **NOTE:** If isolate is NOT #1, arrow up to change Iso: to correct isolate number
3	Allow cards to come to room temperature before opening the package liner.
4	If setting up a mated identification and susceptibility card set: 1. Place tube with 3 mL saline in first slot 2. Scan ID card (GN or GP) and place into first slot with blue stick pointing up 3. Press arrow key (button with two arrows) to the right for next slot. Wait for screen to show next available slot. Message appears: Press F1 to copy previous accession number. Press F1 4. Scan susceptibility (AST) card and place into next slot with grey stick protruding into the empty tube 5. Press F3 to see list of specimens loaded onto the cassette. Using this list, set up **0.5-0.63 McFarland** concentration in first tube and place blue stick into tube
5	If setting up non-mated susceptibility card: 1. Place tube with 3 mL saline in first slot 2. Scan susceptibility (AST) card and place into next slot with grey stick protruding into the empty tube 3. Press the "?" key on the SCS and arrow down to the appropriate organism and press ENTER key. If organism is not in the list on the SCS, wait until the card is loaded onto the Vitek 2 and select from the extended list of organisms 4. Press F3 to see list of specimens loaded onto the cassette. Using this list, set up **0.5-0.63 McFarland** concentration in first tube
6	If setting up identification card only: 1. Place tube with 3 mL saline in first slot 2. Scan ID card (GN or GP) and place into first slot with blue stick pointing up 3. Press F3 to see list of specimens loaded onto the cassette. Using this list, set up **0.5-0.63 McFarland** concentration in first tube and place blue stick into tube

Step	Action
Loading GNI/GNS and GPI/GPS cards onto the Vitek 2	
1	Check that the green Cassette Load Station light is on. A blinking light indicates that a cassette must be unloaded before loading a new cassette. If the light is off, the instrument is not ready to accept a cassette.
2	To avoid jams and terminated cards, check that: 1. The blue and grey sticks are inside tubes 2. The caps on the McFarland Standard tubes are removed 3. The cards are sitting level in the cassette slots 4. The cassette is seated properly in the boat when loaded onto the instrument
3	After loading the cassette, wait for the "happy sound". If the Vitek 2 detects a discrepancy between data stored on the SCS and the actual location of cards in the cassette (load errors), the cassette will be returned to the Cassette Load Station and will not process. Use the SCS screen to keep track of which isolate is where: before lifting cassette off of the SCS and placing it into the Vitek 2 instrument, press F3 to review the list of barcode numbers and card types. Check carefully that the barcode number, card type, isolate number and cassette position match the F3 screen. Correct any discrepancies by using the F8 and/or F9 keys. It may be simpler to use F10 to erase the entire cassette and start over.
4	After the cards are loaded, the cassette will travel back to the loading dock. Unload the cassette when light is flashing green.
5	Replace the cassette onto the SCS. Press any key other than F1 to display the load list.
6	Make purity plates using the blue or grey stick and appropriate media.

CROSS-REFERENCES:

- MIC60030-Vitek 2 Quality Control
- MIC60032-Vitek 2 Quality Control Results Record

REFERENCES:

1. bioMérieux. (2014-02). *Vitek 2 Instrument User Manual*, 510731-10EN1
2. bioMérieux. (2016-01). *Vitek 2 Product Information Manual*, 514740-3EN1
3. bioMérieux. (2019-03*).* *Vitek 2 GN* package insert
4. bioMérieux. (2019-03*).* *Vitek 2 GP* package insert
5. bioMérieux. (2018-08*).* *Vitek 2 AST-N390* package insert
6. bioMérieux. (2015-01*).* *Vitek 2 AST-GP67* package insert

APPROVAL:

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Date

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REVISION HISTORY:

REVISION	DATE	Description of Change	REQUESTED BY
1.0	22 Nov 17	Initial Release	L. Steven
2.0	06 Oct 19	Updated to reflect new N390 cards	L. Steven
3.0	19 Mar 21	Procedure reviewed and added to NTHSSA policy template	L. Steven