



MICROBIOLOGY NEWSLETTER

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THERE ARE NO NORMAL VALUES IN MICROBIOLOGY!
AN IMPROPERLY COLLECTED SPECIMEN MEANS UNINTERPRETABLE RESULTS!

CLS Antibiotic Testing and Reporting Changes Due to Implementation of a New Automated Identification and Antibiotic Susceptibility Testing System (Vitek 2)

Introduction

- On April 3, 2006 CLS is implementing (BioMérieux's) Vitek 2, an updated version of the current automated identification (ID) and susceptibility testing (AST) system.
- Vitek 2 is used for the rapid automated analysis of a wide variety of human pathogenic isolated including; *Enterobacteriaceae*, *Pseudomonas spp.*, *Staphylococcus spp.*, *Enterococcus spp.* and *Candida spp.*
- Vitek 2 has an expanded identification database which results in a more rapid turn-around-time and a reduced need to perform additional tests.
- The AST cards commercially available for the Vitek 2 provides a wider range of antibiotics with extended MIC ranges so that data on emerging and low-level antimicrobial resistance trends can be readily detected and tracked.

As part of the required implementation process for validation and verification of the instrument for routine diagnostic use, CLS Microbiology is currently comparing the performance of our new instrument to our "older" system (Vitek 1) to ensure that Vitek 2 provides reproducible analytical results.

- This newsletter outlines the major AST changes that will come into effect on or before the **April 3, 2006** go live implementation date for the new instrument.

General Overview of Antibiotic Susceptibility Testing and Reporting Changes

- The Vitek 2 instrument uses commercially available specialized cards for ID of Gram-negative and Gram-positive organisms and yeasts. Organism identifications provided by the instrument are routinely compared with other classical biochemical test results before results are reported.
- Commercially available specialized cards are used for AST of each clinically important isolate. Different antibiotic susceptibility cards are used for Gram-negative and Gram-positive organisms.
- With implementation of Vitek 2, CLS can no longer customize the antibiotics available for testing on the instrument's AST cards.
- Use of the standard Vitek 2 AST cards requires that CLS Microbiology makes several important changes to their current AST procedures. These are subsequently outlined for each major group of routinely tested organisms.
- Depending on the isolate being tested and its' AST profile, CLS Microbiology follows the most recent Clinical Laboratory Standards Institute (CLSI) AST guidelines for the routine testing and selective reporting of antibiotic panels.

1. Gram-negative Bacteria (*Enterobacteriaceae* and *Pseudomonas spp.*) – Vitek 2 AST-Card No. 19

- **Cefpodoxime** is no longer available on this card. Cefpodoxime was previously used to screen for organisms producing extended-spectrum β -lactamases (ESBLs). CLS now uses a different system for ESBL screening (i.e., lower concentrations of other 3rd generation cephalosporin substrates including ceftriaxone and ceftazidime).
- **Cefuroxime** is no longer available on this card and will only be tested on request of the physician. Physician's requesting a cefuroxime susceptibility should contact the **Microbiologist-on-call at 770 3757**.
- Several antibiotics **remain** on this card and will be routinely tested but selectively reported. These include; ampicillin, amoxicillin/clavulanic acid, cefazolin, cefalothin, ceftazidime, ceftriaxone, cephalothin, ciprofloxacin, gentamicin, tobramycin, imipenem, nitrofurantoin (on urines), norfloxacin, piperacillin/tazobactam, trimethoprim/sulfa.
- Several **new** antibiotics are available on this card. These include; **amikacin, cefoxitin (for screening AmpC producing bacteria), and piperacillin**. These antimicrobial agents will be routinely tested but only selectively reported according to the most recent Clinical Laboratory Standards Institute (CLSI) AST testing and reporting guidelines.

2. *Staphylococcus spp.* – Vitek 2 - AST-Card No. P536

- **Cefazolin** is no longer available on this card and will no longer be routinely tested. Cefazolin susceptibility will be deduced from its' oxacillin susceptibility result.
- **Staphylococcus spp. from Lower Respiratory Specimens:**
Cefuroxime will no longer be reported, but can be deduced from the Oxacillin result.
- Several antibiotics that **remain** on this card will be routinely tested but selectively reported. These include; ciprofloxacin, clindamycin, erythromycin, gentamicin, nitrofurantoin (on urines), oxacillin, rifampin, tetracycline, trimethoprim/sulfamethoxazole, vancomycin.
- Several **new** antibiotics are available on this card including: **fusidic acid, levofloxacin, linezolid, oxacillin, and quinupristin/dalfopristin**. These antimicrobial agents will continue to be routinely tested but only selectively reported according to the most recent Clinical Laboratory Standards Institute (CLSI) AST testing and reporting guidelines.
- Penicillin will only be reported on *Staphylococcus aureus* from sterile sites or by approval from Microbiologist-on-call at 770-3757.

3. *Enterococcus spp.* - AST- Card No. P534

- Several antibiotics that **remain** on this card will be routinely tested but selectively reported. These include; ampicillin, ciprofloxacin, gentamicin (HC), nitrofurantoin (on urines), penicillin, streptomycin (HC), tetracycline, and vancomycin.
- Several **new** antibiotics are available on this card including: **levofloxacin, linezolid, and quinupristin/dalfopristin**. These antimicrobial agents will be routinely tested but only selectively reported according to the most recent Clinical Laboratory Standards Institute (CLSI) AST testing and reporting guidelines.

If any physicians have concerns or suggestions about these changes, please contact **Dr. Johann Pitout** at **770 3573**.

**IF YOU HAVE ANY QUESTIONS OR COMMENTS ABOUT HOW THE LABORATORY WORKS,
PLEASE CALL US AT 770-3396 (Brenda Kirkham, Manager, Microbiology) or
770-3281 (Dr. Church, Division Head, Microbiology)**