JHH Department of Antimicrobial Stewardship

Quarterly Newsletter
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New Nucleic Acid Tests for Gram-Negative Bacteremia and Fungemia

The Microbiology laboratory will be implementing the GenMark ePlex® BCID for rapid identification of Gram-negatives and yeast/filamentous organisms in blood cultures in mid-December.

- **Gram-negative panel** detects and identifies nucleic acids of 16 Gram-negative aerobic and anaerobic bacterial genera/species and 6 resistance markers
  - Resistance markers:
    a. **ESBL marker**: CTX-M. There are other enzymes (e.g. SHV, TEM) that are not detected by this panel, therefore absence of CTX-M does not rule out ESBL-production.
    b. **Carbapenemase producing markers**: IMP, KPC, NDM, OXA (OXA-48, OXA-23), VIM
- **Fungal panel detects** and identifies nucleic acid of 15 fungal genera/species.
- Results of the test are reported within 3-4 hours after the blood cultures turn positive
- Testing is performed only on the first positive blood culture
- **We have developed treatment guidelines for both panels that will be published in the JHH/BMC Antibiotic Guidelines prior to GenMark's go-live.**
- Verigene will continue to be used for identification of Gram-positives organisms and PNA-Fish will be replaced by GenMark fungal panel.

β-lactams Extended Infusion

- Extending β-lactam infusion times optimizes the PK/PD profile of β–lactams by increasing time above MIC in plasma and tissue compared to intermittent infusions
- This strategy is beneficial in patients with:
  - Increased renal clearance and volume of distribution (e.g., sepsis, critical illness)
  - Morbid obesity
  - MDR Gram-negatives with a high MICs
- Prolonged infusions have been associated with reduced mortality in critically ill septic ICU patients.[1]
- Extended infusion of β-lactam is now routinely used in all JHH ICUs and order panels have been built in Epic for ease of ordering. For more information please see JHH/BMC Antibiotic Guidelines.

NEW Formulary Additions

- **Fidaxomicin**: Restricted to second recurrence of *C. difficile* infection within 6 months. Restricted to ASP approval.
- **Bezlotoxumab:** Restricted to patients having ≥ 3 episodes of CDI in the previous 6 months. Inpatient use restricted to ASP approval.
- **Polymyxin B:** Replacing colistin for treatment of all non-urinary infections caused by resistant *Acinetobacter* and *Pseudomonas spp.* when no other agents are susceptible. Restricted to ID approval.

Sara, Valeria, Edina, Kate & Fidelia

[1]Vardakas K. et al. *Lancet Infect Dis* 2018; 18: 108–20

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