Title:	Impact of the Verigene® Gram-positive blood culture assay in a tertiary care paediatric hospital
Speaker:	Susanna Felsenstein
Author(s):	Felsenstein S.; Taketomo C.; Sandha P.; Dien Bard J.
Affiliation(s):	Pediatrics, Children's Hospital Los Angeles (Los Angeles, USA); Pharmacy, Children's Hospital Los Angeles (Los Angeles, USA); Pathology and Laboratory Medicine, Children's Hospital Los Angeles (Los Angeles, USA)
Date	Tuesday - May 13, 2014 14:30

Objectives:

Bloodstream infections (BSIs) are associated with high rates of morbidity and mortality and prompt microbiological identification and initiation of directed antimicrobial therapy in adult patients has been reported to improve patient outcome and decrease healthcare cost, particularly with active antimicrobial stewardship involvement. This study assessed the impact of the Verigene Gram-Positive Blood Culture (BC-GP) assay (Nanosphere) on outcome in pediatric patients admitted to Children"s Hospital Los Angeles, a free-standing, tertiary care, pediatric hospital.

Methods:

A pre- and post-intervention quasi-experimental study was conducted. A total of 382 pediatric patients with blood culture positive for gram-positive organisms targeted in the BC-GP assay were included in the analysis; 186 in the pre-implementation period and 196 in the post-implementation period. In the pre-intervention period, Gram stain results were called to clinicians within 10 minutes of positivity. Identification and susceptibility results were then resulted in the electronic medical records when available. In the post-intervention period, in addition to Gram stain reporting, the BC-GP results were immediately called to clinicians to enable timely antimicrobial adjustments, when appropriate. Outcome was compared to a pre-intervention period that consisted of conventional culture methods.

Results:

The patients in the pre- and post-implementation period were a comparable mix of acute and chronically ill patients with peripheral (51.6 to 53.1%) or central device sampling (46.9 to 48.4%). Patients ranged from 8 days to 21 years of age with a mean of 4.5 years and no differences in baseline demographics were noted. The BC-GP assay decreased time to gram-positive organism identification from 26.2 to 5.3 h ($p < 0.001$). A significant number of S. epidermidis and coagulase negative staphylococci were identified in both periods (108 pre-intervention, 113 patients post-intervention) and were likely contaminants. Thus, a total of 116 patients (56 pre-intervention, 60 post-intervention) positive with a true bloodstream pathogen (S. aureus, S. lugdunensis, E. faecalis, E. faecium. S. pyogenes, S. agalactiae, S. pneumoniae) were further assessed. Mean to appropriate antimicrobial therapy was 19.1 h longer in the pre-intervention period ($p = 0.05$). However, the mean time to appropriate change or de-escalation after BC-GP results are called to clinicians was still prolonged at 32.7 h.

Conclusions:

Rapid blood culture identification using the BC-GP assay from Nanosphere significantly decreased the time to organism identification and detection of resistance markers. Importantly, the BC-GP assay contributed to the reduction in time to appropriate antimicrobial therapy. However, integration with antimicrobial stewardship team is necessary to further improve time to optimal therapy and patient outcome.

Link: http://eccmid.meetingxpert.net/ECCMID_699/poster_113686/program.aspx