Category 1 :**Sepsis - infections**
Category 2 :**Sepsis - antibiotic therapy**

A28 - ***Automated microscopy for rapid directed antibiotic treatment of sepsis***

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Introduction:

Antibiotic resistance is increasing in frequency due to higher rates of inappropriate antimicrobial therapy and empiric use of broad-spectrum antibiotics.

Methods:

We employed a real-time multiplexed automated microscopy system (ID/AST; Accelerate Diagnostics, Tucson, Arizona) capable of evaluating antibiotic susceptibility and resistance directly from positive blood culture broth in septic patients using automated phenotypic growth pattern analysis.

Results:

Pathogens included Klebsiella species (N=17), E. coli (N=16), Enterobacter species (N=7), P. aeruginosa (N=7), other Gram-negative species (N=10), and Candida species (N=11). Mortality was greater for patients treated with an inactive initial regimen (63.2% versus 6.5%; P < .001). Antimicrobial de-escalation occurred in 41 (63.1%). Time to patient identification and antimicrobial susceptibility using conventional methods was 51.4 hours [48.0, 54.6] versus 10.2 hours [8.3, 11.5] for ID/AST (see Figure). For patients receiving an inactive regimen, ID/AST would have potentially allowed appropriate therapy to be administered a median of 35.8 hours sooner; while de-escalation could potentially have occurred 41.1 hours sooner.

Conclusions:

The ID/AST system provided accurate pathogen identification and susceptibility more than 1 day sooner compared to standard blood culture processing.

Image 1 :