

**Title:** Impact of Accelerate Pheno™ System on Time to De-escalation of Antimicrobial Therapy

**Author(s) and Institution(s):** Caroline Powers, Pharm.D.<sup>1</sup>; Travis Linneman, Pharm.D., BCPS<sup>1,2</sup>; Ryan P. Moenster, Pharm.D., FIDSA, BCIDP<sup>1,2</sup>. 1. VA St. Louis Health Care System; 2. St. Louis College of Pharmacy

**Introduction:** Accelerate Pheno™ system yields identification (ID) and antimicrobial susceptibility testing (AST) within 7 hours of growth in blood culture. The objective of this study was to determine its impact on time to de-escalation of antimicrobial therapy.

**Methods:** This retrospective quasi-experimental, observational cohort study included patients hospitalized at the St. Louis VA who received intravenous antibiotics for a positive blood culture. Patients with blood cultures positive for polymicrobial growth or fungi or those requiring antibiotics for other infections were excluded. The primary endpoint was time to de-escalation of antimicrobial therapy from before and after implementation of Accelerate Pheno™ (September 2017 to August 2018 and September 2018 to August 2019, respectively). Secondary outcomes included time to ID and AST, length of hospital stay, and days of antimicrobial therapy. The variables of gram-positive infections, use of Accelerate Pheno™, and presence of infectious diseases consult and/or pharmacist antimicrobial stewardship note were included in a univariate analysis. Variables with a p-value<0.2 were included in a multivariate regression.

**Results:** 168 patients were included, with 92 patients in the pre-implementation and 76 in the post-implementation group. Overall, mean age was 67 years and 162 (96%) were men. *Staphylococcus* spp. and *Escherichia coli* were the most common causative organisms. Time to de-escalation did not differ significantly between the post-implementation and pre-implementation groups (65 vs. 61 hours, p=0.47). Time to organism ID was decreased by 16 hours using Accelerate Pheno™ (50 vs. 66 hours, p=0.016). However, no difference was found in time to AST or length of hospital stay. Days of antimicrobial therapy while hospitalized was also similar between groups (6.8 vs. 5.9 days, p=0.256). Only gram-positive infections and presence of antimicrobial stewardship notes were included in the multivariate regression. Neither were independently associated with de-escalation within 48 hours.

**Conclusions:** Accelerate Pheno™ system did not impact time to de-escalation of antimicrobial therapy.