A protocol was designed to integrate a comprehensive blood culture identification (BCID) test into our antimicrobial stewardship program to determine if we could decrease our broad spectrum antibiotic use" Ezdon and Cahill (2019).

Abstract:

BACKGROUND: Antimicrobial stewardship aids in reducing the emergence of multi-drug resistant organisms (MDRO) and enhances clinical outcomes through optimization of antimicrobial use. Broad spectrum antibiotics are started in the case of sepsis and are often not deescalated in a timely fashion. A protocol was designed to integrate a comprehensive blood culture identification (BCID) test into our antimicrobial stewardship program to determine if we could decrease our broad spectrum antibiotic use.

METHODS: Our microbiology lab in collaboration with the hospital's antimicrobial stewardship team implemented a rapid BCID polymerase chain reaction (PCR) test. The microbiology lab would run the test in tandem with the Gram-stain when a blood culture was positive. The results were then reported to the nurse and a pharmacist. The pharmacist would make an immediate recommendation to the provider on how to manage the current antibiotic regimen based on the results using a pre-approved algorithm. Data were retrospectively reviewed and included time to antibiotic deescalation, broad-spectrum antibiotic days, length of stay, and cost avoidance. Data were collected for four months before and after implementation from 01/01/2017 to 08/31/2017. Descriptive statistics were utilized to analyze the data.

RESULTS: A total of 99 patients before and 103 patients after were assessed. Time to antibiotic deescalation decreased by 25 hours after implementation (45% reduction). We avoided a total of 70 broad-spectrum antibiotic days and observed a length of stay reduction of 1.45 days. Based on the length of stay reduction, a cost avoidance of $322,508 over the 4 months was calculated. Cost data was derived from the average cost per patient day at our institution.

CONCLUSIONS: The BCID combined with antibiotic stewardship resulted in rapid antibiotic adjustment (average 25 hours sooner), decrease in broad spectrum antibiotic use, and decreased length of stay for patients with bacteremia.

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Blood culture result profile and antimicrobial resistance pattern
Blood culture contamination quality improvement project
Impact of antimicrobial stewardship for patients with positive blood cultures

Reference:
Ezdon, D. and Cahill, J. (2019) Integrating Rapid Diagnostics and Antimicrobial Stewardship for Blood Cultures Improves Antibiotic Use in a Community Hospital. American Journal of Infection Control. 47(6), p.S3. DOI: https://doi.org/10.1016/j.ajic.2019.04.131.