Reducing Time to Antibiotic Administration for High-Risk Patients in the Pediatric Emergency Department

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Purpose: Patients with specified high risk conditions who present to the pediatric emergency room with fever are at an increased risk of morbidity and mortality secondary to infectious causes. Evidence shows that reduced times to first antibiotic dose on entering the ED is associated with improved outcomes. Our aim is to increase the percentage of pre-defined high-risk, febrile patients receiving rapid administration of IV antibiotics.

Methods: Time to antibiotic (TTA) administration for high-risk, febrile patients was evaluated in the Children's of Alabama Emergency Department over a four year time period following the initial addition of high-risk groups to a pre-existing quality improvement process aimed at improving the recognition and early treatment of patients with febrile neutropenia. Six Plan, Do, Study, Act (PDSA) cycles were implemented in effort to increase the percentage of high-risk patients who receive antibiotics within the first hour of arrival to at least 90%. These six PDSA cycles include the introduction of a high-risk order set, text-page communication between ED personnel, delayed radiography until after antibiotic administration, an update of the initial high-risk order set, high-risk badge overrides, and an antibiotic pre-disposed charting category. Monthly TTA data were collected and analyzed.

Results/Anticipated Results: We found that the initial PDSA cycle, introducing a high-risk order set, allowed for a positive process shift when TTA metrics were analyzed. The addition of high-risk badge overrides and antibiotic pre-disposed categories proved most significant in improving TTA. We anticipate similar results following the addition of two new PDSA cycles introducing a modified orderset and nurse-release antibiotics.

Conclusion: Implementing a dynamic high-risk group antibiotic administration process in the ED reduced time to antibiotics for patients at increased risk of infectious-related morbidity and mortality. More research is warranted to identify the most integral process points that warrant change.