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Intravenous push cephalosporin antibiotics in the emergency department: A practice improvement project

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Delays in administration of appropriate antibiotics to patients with septic shock are associated with increased mortality. To improve the care of patients with sepsis within our 73 bed Emergency Department (ED), a first-dose intravenous push cephalosporin antibiotic protocol was initiated. This project was aimed at improving the time from physician/NP order of antibiotic to administration which follows the sepsis core measure of timely antibiotic administration. This was a single center, retrospective analysis of a practice improvement study. Time from physician/NP order of an IV cephalosporin antibiotic to administration was compared between post-protocol dates of March-May 2016 (n=1146) and pre-protocol dates of November 2015-January 2016 (n=1110). Prior to implementation of the IVP protocol, ED nursing staff completed a survey of administration preferences then received on-on-one instruction of the protocol from the clinical nurse specialist and clinical nurse educator, a tip sheet was developed and IVP kits complete with all needed supplies were made available in the automated medication dispensing system. Supply cost was compared. Median time from IV cephalosporin antibiotic order to administration significantly decreased by 8, 12, 14 and 13 minutes for Ceftriaxone, Ceftazidime, Cefepime and Cefazolin, respectively ($p < 0.007$ for all). This was true for all indications of antibiotic use. Nursing staff favored IVP administration to traditional IV infusion (87%). Supply cost to administer IVP antibiotics was \$0.83 compared to \$9.53 for traditional IV infusion. A first-dose IVP protocol decreased time to administration by eliminating the need for procurement of an infusion pump, set-up and documentation of a secondary infusion, thus, freeing nurses to be at the bedside. It was preferred by ED nursing staff and associated with cost savings.

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