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Title

Development of an Emergency Department Surge Plan Based on the NEDOCS score

Priority 1 (Research Category)

Acute and emergency care

Presenters

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Abstract

Context: Emergency Department (ED) overcrowding is a significant problem worldwide. Many factors contribute to ED overcrowding, including staffing shortages, diagnostic testing delays, and inadequate inpatient beds to meet the demand. ED overcrowding results in patient safety issues like higher inpatient mortality and other negative impacts, such as an increased length of stay (LOS) and an increased trend of leaving the ED before undergoing an evaluation and treatment. The National emergency department overcrowding study (NEDOCS) is a scoring system to detect ED overcrowding objectively. Objective: To determine the impact of implementing an ED adult surge plan on ED throughput. Study Design: Prospective single-site study of adults presenting to the ED from January to April 2023. Setting or Dataset: Academic medical center. Population studied: Adult ED patients. Outcome Measures: Mean adult ED hold times, mean ED LOS, left without seen rate, mean door-to-doctor exam time, mean NEDOCS scores. Results: This analysis included 16,701 ED visits and 12,269 patients. During this time, 3,751 (22.5%) patients were admitted to inpatient status, and 1,413 (8.5%) were admitted to observation status. Pre-implementation, the mean ED hold time was 9.9 hours which decreased to 5.7 hours post-implementation ($p=0.03$). Pre-implementation, the mean ED LOS was 15.4 hours which decreased to 14.1 hours post-implementation (p=ns). Pre-implementation, the left without being seen rate was 4.8%, which decreased to 4.0% post-implementation (p=ns). Pre-implementation, the mean door-to-doctor exam time was 57.6 minutes which decreased to 54.0 minutes post-implementation (p=ns). Pre-implementation, the mean NEDOCS score was 186.2, which decreased to 131.2 post-implementation ($p<0.0001$). Conclusions: Our study suggests that implementing an ED adult surge plan can significantly improve ED hold hours and NEDOCS scores. However, it is important to note that other important ED throughput metrics (mean ED LOS, left without seen rate, mean door-to-doctor exam time) did not significantly improve. Further research may be necessary to understand the factors contributing to these outcomes and identify additional interventions that may improve ED throughput.