Implementation of an Innovative Electronic Triage System in an Emergency Department

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Background

Nationally, emergency departments are met with challenges due to increasing patient volumes often leading to overcrowding, delays in treatment, and increased lengths of stay.

Introduction

A standardized patient triage process is a necessary to effectively manage high patient volumes by identifying patients with critical or time sensitive conditions. For an adult emergency department in an urban academic medical center that treats more than 5,000 patients a month, it was imperative that we implement a program that is designed to improve the triage process to effectively manage critically ill patients by differentiating them from patients with less urgent needs.

Material and Methods

Our multidisciplinary team developed the E-triage system (ETS), an automated computer-based algorithm used to differentiate patient acuities based on risk. The algorithm was built into our electronic health record, as a scoring tool used to predict risks of critical events or admission for patients who presented in the emergency department. The ETS was gradually implemented with the support of the nursing leadership team, health informatics team, and triage nurses. Nurse were educated on how to use the system, and provided input and feedback to guide how the E-triage tool would be used. We compared results from the ETS tool to the Emergency Severity Index (ESI).

Objectives

The aim of our project was to develop and implement an innovative electronic triage assessment tool to improve distribution of patients across five severity levels, reduce dependence on subjective decisions, and optimize the level of acuity level classification based on clinically important outcomes.

Results

Upon evaluation of implementation of ETS, we found there was an increase in high acuity detection of critical outcomes (mortality, ICU, emergent procedures): 43% increase in detection (10.8% to 15.5%). We concluded that patients who were typically identified with higher acuities using ESI, scored lower on the ETS; thus improving differentiation of lower acuity patients. As a result we also saw a decrease discharged patient lengths-of-stay by 5%.

Conclusion

ETS assessment tool does not replace critical thinking necessary with triage nurses. It is used to improve health outcomes, especially for patients with critical or time-sensitive conditions. The E-triage system was designed for clinical decision support, reduce subjectivity, and provide additional knowledge to better differentiate acuities among patients seeking care in the emergency department. Further study is necessary to evaluate outcomes of the reclassification of the patients visiting the emergency department.

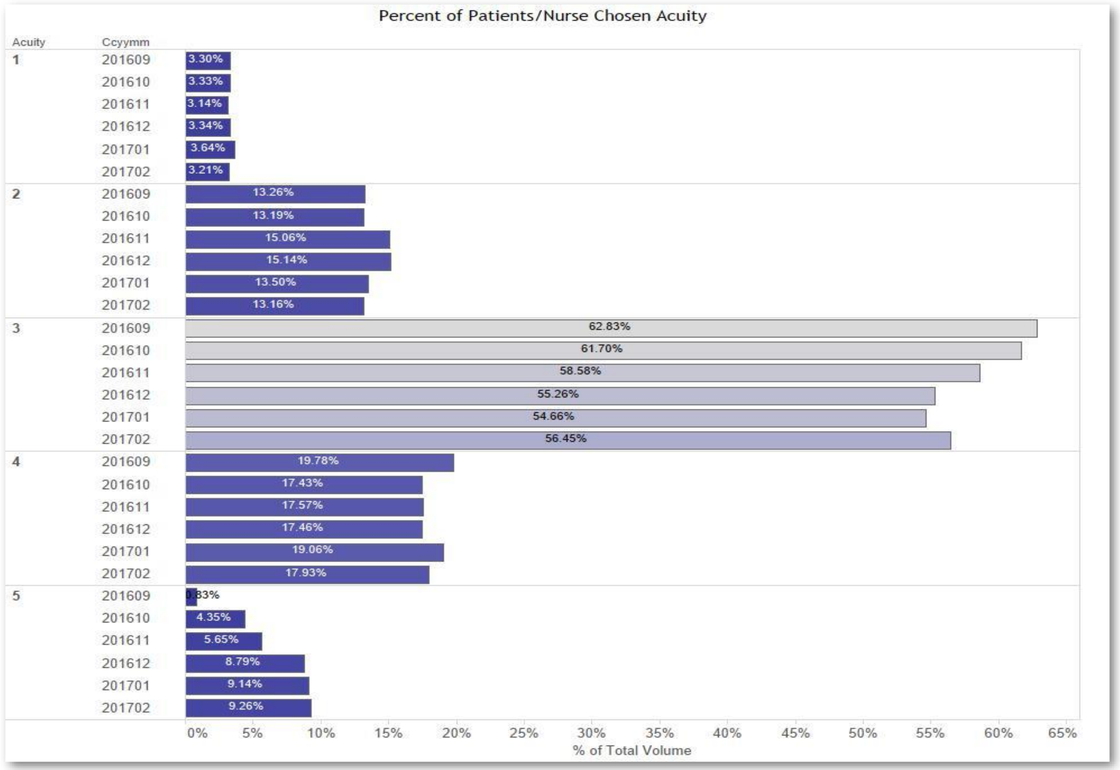

Figure 1

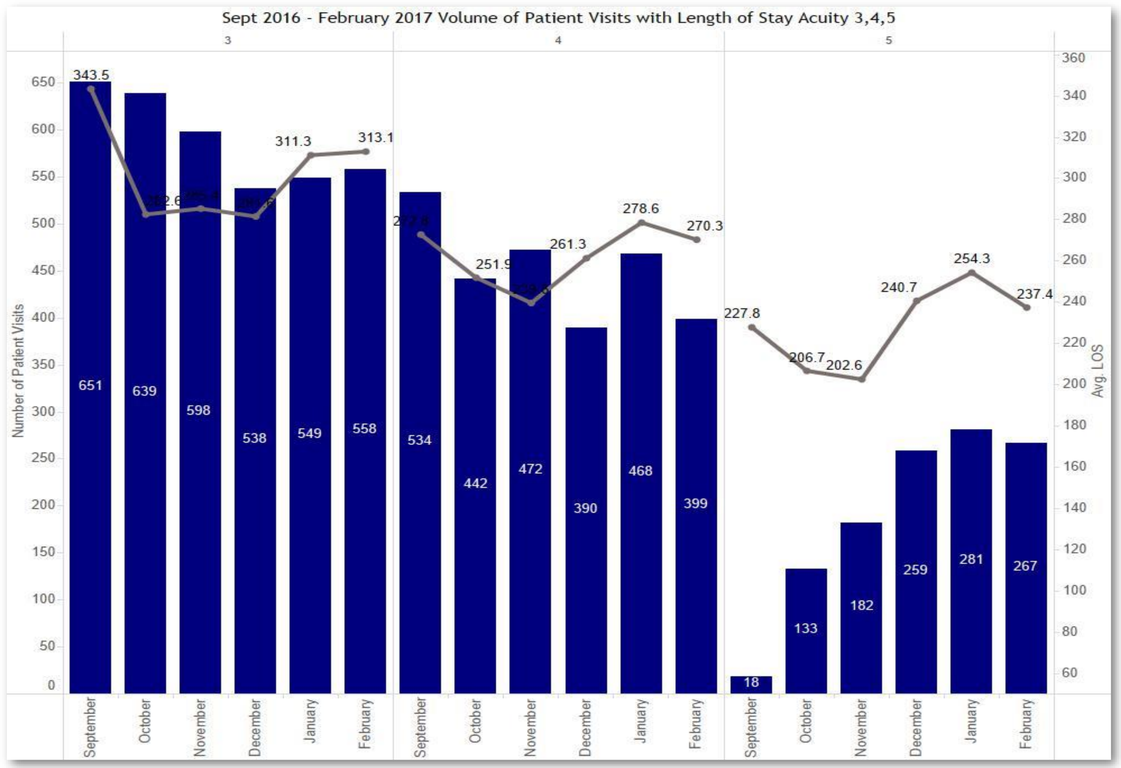

Figure 2