

EMERGENCY DEPARTMENT CHARACTERISTICS AND OUTCOMES OF PATIENTS REQUIRING RAPID RESPONSE TEAM ACTIVATION WITHIN 24 HOURS OF EMERGENCY ADMISSION

Christopher M Reinhackel¹, Aarti Bavare², Binita Patel³, Danielle Guffey⁴

¹ Baylor College of Medicine, Department of Pediatrics, Emergency Medicine

² BCM, Pediatrics, Critical Care

³ BCM, Pediatrics, Emergency Medicine

⁴ BCM, Clinical and translational Research, Biostatistics

Background: Early RRT activation (eRRT) in patients admitted from the emergency department (ED) is associated with significantly increased mortality. Predicting these events may represent an opportunity to identify patients who would benefit from further resuscitation, aid disposition decision-making, or improve communication between ED and inpatient providers. Currently, little research in pediatrics focuses on identifying factors during the emergency room visit, characteristics and outcomes of pediatric patients admitted from the ED with eRRT.

Materials/Methods: We conducted a three-year (2015-2017) retrospective study to compare eRRT utilization, clinical characteristics, time data of flow through the hospital system, vital sign data, along with clinical outcomes in patients admitted from the ED with eRRT called within the first 24 hours.

Results: Of the 1,560 patients admitted from the ED with rapid responses (RR) during admission, 679 (44%) occurred within 24 hours. Thirty-nine percent of eRRT's were infants aged <1 year, 60% were male. Respiratory complaints were the more common reason for hospitalization (57%) in the eRRT group when compared to RRT \geq 24 hours. There were increased gastrointestinal, hematologic, complex chronic conditions and surgical complications, severity level, and risk of mortality among the RRT \geq 24-hour group. Neuro triggers for calling an RRT are more common in \geq 24-hour group while other triggers were similar in both groups. Intensive care unit (ICU) and hospital LOS and all charges and mortality were higher among \geq 24-hour group. ED duration and doctor to disposition and triage category (1-5) are higher among <24-hour group. 72% percent of the eRRT population were transferred to a higher level of care. Only 34% needed critical care level interventions (non-invasive positive pressure, intubation, initiation of inotropic support or coded) while in ICU. In hospital mortality was rare (1%).

Conclusions: Determining risk factors of early RRT activation is of clinical, operational, and financial importance, as improved medical decision-making regarding disposition would maximize allocation of resources while potentially limiting morbidity and mortality. Male subjects, infants aged <1 year, and children with respiratory complaints accounted for a large proportion of children requiring early unplanned admission to the PICU within 24 hours of hospitalization from the ED. Further studies are required to determine which factors are associated with deterioration after hospitalization.