

June 2022

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Recommended Citation

Husain, Arqam; Chalek, Adam D.; and Dunne, Robert, "Validation of the Termination of Resuscitation Rules in Detroit" (2022). *Medical Student Research Symposium*. 146.

https://digitalcommons.wayne.edu/som_srs/146

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Validation of the Termination of Resuscitation Rules in Detroit

Arqam Husain, Adam D. Chalek, Robert Dunne

Introduction: 326,000 patients suffer from an out of hospital cardiac arrest (OHCA) each year. The Termination of Resuscitation (TOR) criteria guides physicians in determining the futility of continuing CPR and transporting patients to the hospital. We examined compliance with current BLS TOR rules and assessed an alternate set of rules to derive improved TOR guidelines for OHCA in Detroit.

Methods: A retrospective study was conducted utilizing non-traumatic OHCA cases in Detroit from January 1, 2017 to December 31, 2019, which includes time before and after BLS TOR guidelines were implemented. Patients younger than 18 and arrests of traumatic origin or those with no resuscitation attempted were excluded.

Results: Prior to TOR implementation, the overall survival rate was 5.8% while the transportation rate when TOR was met was 77%. Post-TOR implementation, the survival rate was 5.5% and the transportation rate was 34%. Post-hoc addition of age or EMS time to patient side increased transportation rates to 49% and 47%, respectively, and decreased false positive terminations from 0.88% to 0.84% and 0%, respectively.

Conclusion: Since the implementation of the BLS TOR guidelines in Detroit, futile transportation rates have decreased without affecting overall survival. Addition of EMS time to patient side or patient age to the current TOR guidelines suggested improved performance. Although the additional criteria resulted in higher transportation rates, these factors may be useful for physicians to consider when deciding to transport patients who meet the current TOR criteria. However, further derivation and validation are necessary to create optimal TOR guidelines.