ED overcrowding.

This study provides an example of the negative consequences of DTE times at a single Canadian ED, even after controlling for age and sex. This hypothesis that increased ED crowding will increase the DTE time.

Methods: This was a retrospective cohort study from July 2015-May 2016 at a single tertiary care Canadian ED (53,000 visits per year). Data were extracted from the ED information system (EDIS) which contains an organized record of ED activity for each visit. Our selection criteria screened for patients presenting with complaints that included chest pain, chest heaviness, chest tightness and chest burning. The primary outcome of the study was the association between ED occupancy and DTE time, which was measured using a non-parametric Spearman correlation. Multivariable linear regression models controlling for age and sex were developed for both time in minutes, and the log transformed time in minutes.

Results: There were 2479 ECGs done on patients presenting with chest pain that met inclusion criteria. The median DTE time was 55.1 minutes. There was a significant positive association between DTE time and ED occupancy (rho = .133, p < 0.001). DTE time increased by 0.64 minutes (or approximately 0.4%) for each additional patient in the ED, p < 0.001. Additionally, younger age and female sex were also associated with increased DTE time.

Conclusion: Increased ED occupancy was correlated with longer DTE times at a single Canadian ED, even after controlling for age and sex. This study provides an example of the negative consequences of ED overcrowding.

Keywords: overcrowding

A systematic review of the association between emergency medical services (EMS) time factors and survival

Methods: Medline, EMBASE, and CINAHL were searched up to January 2015 for articles reporting original data that associated EMS operational time factors and survival. Conference abstracts and non-English language articles were excluded. Two investigators independently assessed the candidate titles, abstracts, and full text with discrepant reviews resolved by consensus. Risk of bias was assessed using GRADE.

Results: A total of 10,151 abstracts were screened for potential inclusion, 199 articles were reviewed in full-text, and 73 met inclusion criteria. Amongst included studies, 49 investigated response times, while 24 investigated other time factors. All articles were observational studies. Amongst the 14 (28.6%) studies where response time was the primary analysis, statistically significant associations between shorter response time and increased survival were found in 5 of 7 cardiac arrest, 1 of 5 general EMS population, and 0 of 2 trauma studies. Other time factors were reported in the primary analysis in 10 (41.7%) studies. One study reported shorter combined scene and transport intervals associated with increased survival whereas the other reported increased survival associated with longer scene and transport intervals. Study design, analysis, and methodological quality were of considerable variability, and thus, meta-analyses were not possible.

Conclusion: There is a substantial body of literature describing the association between EMS time factors and survival, but evidence informing these relationships are heterogeneous and complex. Important details such as patient population, EMS system characteristics, and analytical approach must be taken into consideration to appropriately translate these findings to practice. These results will be important for EMS leaders wishing to create evidence-based time policies.

Keywords: prehospital, response time, time factors