

## POSTER 041. The Wake Effect—Emergency Vehicle-Related Collisions

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**Introduction:** Emergency medical-vehicle collisions (EMVCs) occurring during initial response and transport have been a long-standing problem for EMS systems. Our own experience suggests the existence of “wake-effect” collisions occurring as a result of an EMS vehicle’s transit, but not involving the EMV. Substantiating the existence and magnitude of wake-effect collisions may have major implications regarding the manner of EMV response.

**Hypothesis:** Paramedics, when surveyed, will report that wake-effect collisions do occur and that they occur more frequently than EMVCs.

**Methods:** *Design:* Survey analysis. *Participants:* Thirty paramedics employed by the Salt Lake City, Utah, Fire Department and 45 paramedics employed by Salt Lake County Fire Department. *Geographic Area:* Service area has population of 650,000 and is urban, suburban, and rural. *Measurements:* The survey consisted of three open-ended questions concerning years on the job, EMVCs, and wake-effect collisions. *Analysis:* The mean EMVCs and wake-effect EMVCs, along with the 0.95 confidence intervals (0.95 CI) were determined.

**Results:** Seventy-three surveys were analyzed. Sixty EMVCs and 255 wake-effect collisions were reported. Overall, the mean EMVCs reported per respondent were 0.82 (0.60–1.05) and for wake collisions 3.49 (2.42–4.55). Emergency medical-vehicle collisions means for each fire service were 0.86 (0.50–1.38); 0.80 (0.50–11.0). For wake-effect collisions the means were 04.59 (2.83–6.35); 2.76 (1.46–4.06).

**Conclusions:** Our study suggests that the wake-effect collision is real and may be occurring more frequently than EMVCs. Significant limitations of this study are recall bias and also misclassification bias. Future studies are needed to define more precisely wake-effect collision prevalence and the resulting “cost” in regard to injury and vehicle/property damage.

## POSTER 043. Ability of a Priority Dispatch System to Respond Appropriately to Victims of Cardiac Arrest

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**Purpose:** To evaluate the accuracy of the Emergency Medical Priority Dispatch System (EMPDS) with respect to response level for cardiac arrest cases, and to compare response times for delta versus other response levels. The study setting was an urban ALS system that adopted a priority dispatch system 2.5 years ago. The sensitivity of the EMPDS has not been evaluated with regard to cardiac arrest cases since its implementation. We hypothesized that 99% of cardiac arrest cases would receive the highest level of response.

**Methods:** We retrospectively reviewed 1994 emergency medical services (EMS) atraumatic cardiac arrest incident reports. We compared response time to response level using a subsample of 230 cases for which complete data were available. We used ANOVA and chi-square tests in our analyses.

**Results:** Of 284 cardiac arrest cases, 258 (90.8%) were classified as delta, 17 (6.0%) as charlie, eight (2.8%) as bravo, and one (0.4%) as alpha. More cases were misclassified as charlie or lower than expected ( $p < 0.0001$ ). Response time was slightly faster for delta (mean = 6.9 minutes; 95% CI = 6.5, 7.3) than other (mean = 7.6; 95% CI = 6.8, 8.5) response levels ( $p = 0.25$ ).

**Conclusion:** The EMPDS has high sensitivity in identifying and responding to cardiac arrest calls. The highest priority calls had, on average, approximately one minute faster response times than the lower priority calls. This reflects the importance of accuracy in this system, particularly with regard to conditions, such as cardiac arrest where response time is highly correlated with survival. The results of this study support the use of the EMPDS, and indicate the need for more specific analyses of the causes and consequences of misclassification of cardiac arrest cases.