identification or screening of stroke patients by our Paramedics was then determined from the data recorded in the prehospital patient care reports (PCRs). Patients with a documented primary or secondary impression of Stroke/CVA or details of Stroke/CVA signs and symptoms in the narrative of the PCR, were considered positively identified. **Results:** Of the 566 patients diagnosed with Stroke/CVA, 459 (81%) had either a primary or secondary impression of Stroke/CVA, or had a descriptive narrative detailing signs and symptoms of Stroke/CVA as indicated by the prehospital PCRs. The remaining 107 (19%) had no indication within the PCR of a primary or secondary impression of stroke; or a descriptive narrative indicating the signs and symptoms of a stroke. Of the 107 patients who were not identified as Stroke/CVA in the prehospital environment, 17 (16%) were unconscious and could not be evaluated for Stroke/CVA. The remaining 90 patient's presentations broken down as follows: Altered mental status 41 patients (38%); General weakness 23 patients (22%); Dizziness/headache 18 patients (17%); Sick/not feeling well 8 patients (7%). **Conclusions:** 81% of the patients, treated by paramedics in the field, and admitted, with a diagnosis of Stroke/CVA, were identified by the ALS provider(s). Additionally, 58 of the 107 patients (54%) who were not identified as Stroke/CVA could not have been evaluated by ALS providers using common prehospital stroke screening tools due to unconsciousness or altered mental status.

47. Can Prehospital Activation of a ;"Stroke Code" Decrease Time to Thrombolysis?

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Background: Treatment for ischemic stroke with tissue plasminogen activator (tPA) is effective but time sensitive, and many centres expedite this process with a 'stroke code' protocol. We compared 'prehospital' to 'in-hospital' activation of stroke code to determine if this affected time from emergency department (ED) arrival to tPA administration (door-to-needle time). **Methods:** We conducted a 12 month, prospective cohort study involving Eastern Ontario paramedics and two urban tertiary care stroke centres using stroke code protocols. Paramedics used a prompt card to identify a possible acute ischemic stroke, then patched to the closest stroke centre. The prehospital activation center called a stroke code immediately, while the in-hospital activation center deferred until ED physician assessment before calling a stroke code. We compared continuous time intervals using Student t-test and dichotomous variables using univariate logistic regression and chi-square statistics. **Results:** We enrolled a total of 555 patients, with mean age 72.3 years, male 51.9%, 70.4% stroke code called, and 51.1% with stroke as final diagnosis. At the prehospital activation centre, a total of 130 patients were seen with stroke code called in 94.6%, diagnosis of stroke in 47.7%, administration of tPA in 23.9% and post tPA life-threatening bleed in 3.2%. At the in-hospital activation centre, a total of 425 patients were seen with stroke code called in 63.1%, diagnosis of stroke in 52.1%, administration of tPA in 24.0% and post tPA life-threatening bleed in 5.9%. Mean door-to-needle time was 51.4 minutes (range ±SD; 17-199 ±40.4) in the prehospital centre and 52.3 minutes (range ±SD; 24-208 ±26.1) at the in-hospital centre ($p = 0.886$). Of the 123 prehospital stroke code activations, 62 were diagnosed with stroke and of the 268 in-hospital stroke code activations, 221 were diagnosed with stroke ($p = 0.0001$). **Conclusion:** We were unable to demonstrate a benefit from prehospital stroke code activation in reducing door-to-needle time, rate of tPA administration, post tPA bleed, or survival to discharge. In-hospital physician stroke code activation was more specific in terms of yield for true strokes, but the impact on hospital resources and personnel needs further study.

48. Prehospital Stroke Systems: A Tale of Two Regions

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Background: While experts recommend that EMS transport suspected stroke patients directly to specialty stroke centers, the organizational strategies for these systems vary. Only limited data compare stroke treatment resulting from these varying regionalization models. We compared stroke treatment outcomes between two regional stroke care systems. **Methods:** Using a cross-sectional design, we compared two regional stroke care systems in Alabama. Region A, a mostly urban setting (217 persons/sq mile), utilized a single-tier stroke center system, with all designated stroke hospitals having immediate neurologist availability. Region B, a mostly rural setting (80 persons/sq mile) utilized a three-tiered stroke center system (Levels 1-3), with stroke care at lower tiered centers provided through telemedicine or phone consultation. Both regions utilized the same prehospital stroke triage tool (FAST stroke scale), allowed direct diversion to stroke centers, and used the same stroke communication and referral center. For a 5-month study period, the primary outcomes were accuracy of EMS stroke identification, type of stroke, and administration of tissue plasminogen activator (tPA). We analyzed the data using binomial proportions, positive predictive values, Fisher's exact test. **Results:** During the study period, outcomes data were available for 461 of 684 (67.4%) EMS-identified strokes in Region A and 533 of 878 (60.7%) in Region B. Based upon receiving Emergency Department reports, prehospital stroke identification was more accurate in Region A than B (positive predictive value 54.2% vs. 40.7%, $p<0.001$) but was low in both regions. Rates of hemorrhagic stroke (20.9% vs 27.5%, $p = 0.19$) and tPA administration (18.7% vs 16.9%, $p = 0.78$) were similar between Region A and B. **Conclusion:** While these two communities used different stroke center organization systems and exhibited different rates of accurate prehospital stroke classification, rates of tPA administration were similar. Community stroke system organization may influence stroke care outcomes.

49. Association between EMS Teammate Familiarity and Injury

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Background: Care delivery in Emergency Medical Services (EMS) is high-risk, time-dependent, and requires coordination between two EMS clinicians (a dyad). Previous research suggests lack of familiarity between teammates is associated with increased risk of poor performance and safety outcomes. We sought to characterize EMS clinician dyadic familiarity and determine its association with injury. Findings may guide safety management and team configuration in EMS. **Methods:** We abstracted a mean of 26.3 months of shift records (range 22-35 months) and Occupational Safety Health Administration 300 injury logs from 37 EMS agencies and base sites spread across all 4 major census regions. EMS dyadic familiarity was calculated for each shift as the number of shifts worked together since the beginning of the study period. Plots and histograms guided stratification of familiarity exposure. We calculated standard measures of central tendency to describe our data. We calculated the annual incidence rate of injury (per 100 FTEs) for each category of dyadic familiarity. Poisson regression was used to examine differences in injury incidence rate ratios (IRR) by dyadic familiarity. **Results:** Total shift records collected was 728,182, total employees 4,241, total unique dyads 61,625, and total injuries 820. Mean shifts per dyad (5.9, SD 19.7). Shifts per dyad was skewed with 1 shift worked together at 53.7%, 2-3 shifts (24.8%), 4-9 shifts (11.8%), and >10 shifts (9.6%). Mean incidence rate of injury across EMS agencies was 13.7 per 100 FTEs, (SD 23.1), range 0.0 to 98 per 100 FTEs. The raw injury rate for 1 shift of familiarity 12.9, for 2-3 shifts 18.6, for 4-9 shifts 24.5, and for $>= 10$ shifts 16.5 per 100 FTEs. Compared to 1 shift of familiarity, dyads with 4-9 shifts had a higher incidence rate of injury (IRR = 1.9; 95%CI 1.2, 3.0) than dyads with 2-3 shifts (IRR = 1.4; 95%CI 0.9, 2.4) or $>= 10$ shifts (1.3, 95%CI 0.9, 1.9) ($p<0.05$). **Conclusions:** Findings show a curvilinear relationship between dyadic familiarity and injury. A possible yet untested explanation may be greater vigilance concerning risk of personal injury in unfamiliar versus familiar EMS teams.

50. Ambulance Safety, Then and Now: A Longitudinal Paradigm Shift

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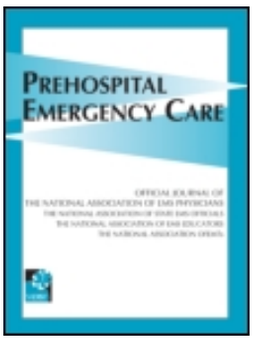
Background: The high-stakes nature of EMS pushes providers to make every second count. The pressure to move fast, coupled with emergency lights and siren systems, increases the risk to provider safety. Our objective was to assess and describe a ten year change in components related to collisions involving emergency vehicles and ambulance safety habits. **Methods:** We performed a cross-sectional comparison between data collected in 2004 and in 2014 through the Longitudinal EMT Attributes and Demographics Study (LEADS). Specific items assessed included prevalence of ambulance collisions in the past 12 months, provider location during a collision, emergency lights and siren utilization and seatbelt use. Analyses were conducted on respondents who worked as EMS professionals in the last 12 months. Descriptive statistics were calculated. **Results:** Responses were received from 1,773 (32.0%) individuals in 2004 and 1,124 (43.6%) in 2014. The prevalence of reported ambulance collisions decreased by 0.4% (6.9% in 2004 and 6.5% in 2014). At the time of the collision a greater proportion of respondents were in the driver's seat (48.8% in 2004 and 40.7% in 2014). There was a substantial decrease in collisions while using lights and sirens from 43.5% in 2004 to 25.4% in 2014. Ten years ago, 17.3% of individuals received medical attention after an ambulance collision compared to 10.2% in 2014. Lastly, ambulance seatbelt use in the patient compartment increased from 10.0% of individuals who wore seatbelts either always or nearly always in 2004 to 26.7% in 2014. **Conclusions:** While the prevalence of ambulance collisions remained the same as it was 10 years ago, the severity of self-reported injury decreased. Although the assessment of causation was out of the scope of our study, the increased prevalence of seatbelt use and



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