

( $p < 0.001$ ,  $r = -0.24$ ). However, no relationship was observed in the off-service group ( $p = 0.62$ ,  $r = -0.05$ ). **Conclusion:** Resident performance and trainee proximity are important factors impacting the quality of documented clinical performance assessments. Greater attention needs to be given to determining ways of improving the quality of assessments reported for residents who are appropriately progressing in their clinical competence as well as for off-service trainees.

**Keywords:** resident assessment, daily encounter cards, trainee proximity

#### LO081

##### Novel EMS spine board to accurately weigh critically ill or injured children

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**Introduction:** A rapid and accurate weight of a child can be of critical importance during pediatric emergencies. The Broselow Tape (BT) is the gold standard for estimating a child's weight based on their length. It separates children into incremental weight categories. Studies have shown that the BT is not accurate. We created a new pediatric spine board (PedEBoard) that weighs the child. The objective of this study was to compare the agreement between the actual weight vs. the PedEBoard weight and BT estimated weight of children presenting to a pediatric emergency department (ED). **Methods:** Ethics approval was obtained from McMaster University. A power calculation was done for sample size to detect 10% error. Consecutive children were recruited who presented to McMaster University's Children's ED on two days in March 2015. Children were excluded if their length was outside the BT range, non-English speaking or critically ill. Children had their weight taken by the triage nurse either on an infant scale or on a traditional standing scale. The nurse also took the child's length using a standard measuring tape or height on the standing medical scale. Infants were placed on the PedEBoard by investigators while older children were asked to lie down on the board. Investigators were blinded to the actual weight. BT weight was determined by the palmPEDi Lite app. Bland-Altman analysis was performed, comparing the percent difference between the actual weight vs. PedEBoard weight and actual weight vs. BT weight. The correlation between the PedEBoard and BT was assessed using the Spearman coefficient of rank. Data was entered into MedCalc for Windows 98, Version 15.2.2 **Results:** A total of 157 children were included in the study. The mean actual weight was 19.4kg (95% CI 17.4 to 21.3) vs. the PedEBoard weight 19.4kg (95% CI 17.4 to 21.3) vs. the BT weight 16.9kg (95% CI 15.6 to 18.2). Bland-Altman percent difference was 0.1% (95% CI -2.0 to 1.8%) between the actual weight and the PedEBoard weight and 9.6% (95% CI -22.0% to 41.2%) between the actual weight and the BT weight. The Spearman coefficient of rank correlation was 1.000  $p < 0.0001$  (95% CI 0.999 to 1.000) for the PedEBoard and 0.969  $p < 0.001$  (95% CI 0.957 to 0.977) for the BT. The BT provided the wrong weight category 80% of the time vs. 8% for the PedEBoard. **Conclusion:** The PedEBoard closely agreed with the actual weight of the child while the Broselow Tape estimate often did not.

**Keywords:** pediatrics, resuscitation, Broselow Tape

#### LO082

##### EMS response to police use of force events: periods of personal and professional risk in prehospital care

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**Introduction:** This study provides an estimate of the number of EMS calls related to police use of force events that involve struggling, intoxicated and/or emotionally distressed patients. We hypothesized there would be under-reporting of EMS risk by paramedic agencies due to lack of standardized reporting of police events by EMS services and lack of a common linked case number between prehospital agencies in Canada. **Methods:** Data were collected during a multi-site, prospective, consecutive cohort study of police use of force in 4 Canadian cities using standardized data forms. Use of force was defined a priori and the application of handcuffs was not considered a force modality. Inclusion criteria: all subjects  $\geq 18$  years of age involved in a use of force police-public encounter. We defined risk to EMS as the presence of police- and/or paramedic- assessments of violent or struggling subjects on the scene. Three separate data forms (police-report of use of force, EMS encounter, and Emergency Department (ED) visit) were linked in the study by unique ID. When police-reported EMS was activated, investigators hand searched the EMS service reports at the relevant agencies for matching call sheets. **Results:** From Jan 2010 to Dec 2012, we studied 3310 consecutive public-police interactions involving use of force above simple joint lock application. Subjects were male (86%) with a mean age of 33 yrs; 85% were assessed by police as emotionally disturbed, intoxicated with drugs and/or alcohol or a combination of those. 45% were violent at the scene. Police-reported EMS attendance in 24% (809/3310) of use of force events, of which only 43% (349/809) of EMS run sheets were available. In events with violent subjects, EMS transported 51% to ED compared to 35% by police transport ( $\chi^2 = 79.7$ ,  $p = 0.00$ ). **Conclusion:** We identified periods of professional and physical risk to paramedics attending police use of force events and found that risk significantly underrepresented in EMS data. Paramedical training would benefit from policy and procedures for response to police calls and the violent patient, the majority of whom are struggling. A common linked case number in prehospital care would enable more specific quantification of the risk for EMS providers involved in police events.

**Keywords:** paramedicine, police, intoxication

#### LO083

##### Outcomes and resource utilization among syncope patients transported by emergency medical services

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**Introduction:** Syncope accounts for 1% of all annual emergency department (ED) visits in Canada with only 10.3% suffering serious adverse event (SAE) within 30-days. However, 66% are transported to ED by Emergency Medical Services (EMS). Our objectives were to assess 30 day SAE among syncope patients transported by Emergency medical services (EMS), assess the need to develop an EMS clinical decision aid, and estimate anticipated health care savings by diverting patients from the ED to alternative care pathways. **Methods:** We conducted a prospective cohort study at four tertiary care EDs from Feb 2012 to Feb 2013. We included patients  $\geq 16$  years of age with syncope and who arrived to the ED via EMS. We collected patient demographics, medical history, 30 day SAE, EMS time points (call received, EMS arrival on scene, EMS departure from scene, time of transfer of care in the ED), critical EMS interventions, and ED

length of stay. We assessed for the occurrence of any SAE (death, arrhythmia, other cardiac and non-cardiac conditions) within 30 days of ED disposition. We used descriptive analysis, unpaired two-tailed t-test and chi-square test. Ethics approval was obtained at all study sites. **Results:** Of 1,475 ED patients with syncope during the study period, 992 (67.3%) arrived by EMS. Mean times (SD) for EMS arrival to the scene, patient assessment at the scene and transfer of patient from scene to the ED were 10.1 (6.4), 18.9 (8.3), and 14.6 (11.5) minutes respectively. Only two patients had critical interventions enroute (pacing and defibrillation). Overall 138 (13.9%) patients suffered a SAE; 32 (3.2%) detected by EMS, 58 (5.8%) detected during ED evaluation, 48 (4.8%) after ED disposition. The average ED length of stay was 5.9(4.2) hours. Based on average of cost from two sites, we estimated that total cost of transporting syncope patients from the scene to the ED to be \$4 million in Canada. The total cost of ED care for syncope patients transported by EMS in Canada was calculated at \$21.5 million. **Conclusion:** A substantial proportion of patients arriving to the ED via EMS suffer no SAE within 30 days. Correspondingly, our results suggest a need for an EMS clinical decision aid to divert low-risk syncope patients to alternative care pathways such as family physicians or rapid access clinics. If developed and implemented, this tool can potentially reduce EMS burden, ED crowding, and reduce healthcare costs.

**Keywords:** syncope, emergency medical services (EMS), health resource utilization

#### LO084

##### Text messaging research participants as a follow-up strategy to decrease emergency department study attrition

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**Introduction:** Collecting patient-reported follow-up data for prospective studies in the emergency department (ED) is challenging in this acute care, minimal continuity setting. Follow-up is frequently attempted using telephone contact and in some instances mail correspondence. The objective of this study was to determine if text messaging study participants involved in an ongoing randomized trial resulted in a lower rate of attrition as compared to conventional telephone follow-up. **Methods:** This was a secondary analysis of research participants enrolled in a randomized controlled trial assessing head injury discharge instructions. Adult (18-64 years) patients presenting to an academic ED (annual census 65,000) with chief complaint 'head injury' occurring within 24 hours of ED visit were contacted by telephone 2 and 4 weeks post ED visit to complete a symptom questionnaire. During the first 4 months of study follow-up, participants were contacted by a conventional telephone call. Attrition was higher than anticipated, thus we received subsequent ethics approval for the final 3 months of follow-up duration to contact participants by text message on the day of the first telephone attempt as a reminder of the telephone interview scheduled later that day. The proportion of patients lost to follow-up at 2 and 4 weeks post ED visit was compared between participants not receiving and receiving reminder text messages. **Results:** 118 patients were enrolled in the study (78 underwent conventional follow-up and 40 received text messages). Mean (SD) age was 35.2 (13.7) years and 43 (36.4%) were male. During the period of conventional follow-up, 3 participants withdrew from the study. Of the remaining 75 participants, 24 (32.0%) at 2 weeks and 32 (42.7%) at 4 weeks were unable to be contacted. Of the 40 participants receiving a reminder text message, 4 (10.0%) at 2 weeks and 10 (25.0%) at 4 weeks were unable to be contacted. Overall, text messaging study participants decreased attrition by 22% (95% CI: 5.9%, 34.7%) and

17.7% (95% CI: -0.8%, 33.3%) at 2 and 4 week follow-up, respectively. **Conclusion:** In this young ED cohort participating in a randomized trial, text message reminders of upcoming telephone follow-up interviews decreased the rate of attrition. Text messaging is a viable, low-cost communication strategy that can improve follow-up participation in prospective research studies.

**Keywords:** methodology, communication, follow-up

#### LO085

##### Canadian in-hospital mortality for patients with emergency-sensitive conditions

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**Introduction:** The emergency department (ED) hospital standardized mortality ratio (ED-HSMR) measures risk-adjusted mortality for patients admitted to hospital with conditions for which ED care may improve outcomes (emergency-sensitive conditions). This study aimed to describe in-hospital mortality across Canadian provinces using the ED-HSMR. **Methods:** Data were extracted from hospital discharge databases from April 2009 to March 2012. The ED-HSMR was calculated as the ratio of observed deaths among patients with emergency-sensitive conditions in a hospital during a year (2010-11 or 2011-12) to the expected deaths for the same patients during the reference year (2009-10), multiplied by 100. The expected deaths were estimated using predictive models fitted from the reference year for different hospital peer-groups (teaching, large, medium and small hospitals) adjusted for comorbidities, age, diagnosis, and hospital length of stay. Thirty-seven validated emergency-sensitive conditions were included (e.g., stroke, sepsis, shock). Aggregated provincial ED-HSMR values were derived from patient-level probabilities of death. A HSMR above or below 100 respectively means that more or fewer deaths than expected occurred in hospital within a province. **Results:** During the study period, 1,335,379 patients were admitted to 629 hospitals across 11 provinces and territories with an emergency-sensitive condition as the most responsible diagnosis, of which 8.9% died. More in-hospital deaths (95% confidence interval) than expected were respectively observed for the years 2010-11 and 2011-12 in Newfoundland [124.3 (116.3-132.6) & 117.6 (110.1-125.5)] and Nova Scotia [116.4 (110.7-122.5) & 108.7 (103.0-114.5)], while mortality was as expected in Prince Edward Island and Manitoba, and less than expected in other provinces and territories [Territories 67.3 (48.3-91.3) & 73.2 (55.0-95.5); New Brunswick 87.7 (82.5-93.1) & 90.4 (85.2-95.8); British Columbia 92.0 (89.6-94.4) & 87.1 (84.9-89.3); Saskatchewan 92.3 (87.1-97.4) & 90.8 (86.2-95.6); Ontario 94.0 (92.6-95.4) & 88.0 (86.6-89.3); Alberta 94.1 (91.1-97.2) & 91.0 (88.2-93.9); Québec 95.7 (93.8-97.6) & N/A]. **Conclusion:** Our study revealed important variation in risk-adjusted mortality for patients admitted to hospital with emergency-sensitive conditions among Canadian provinces. The results should trigger more in-depth evaluations to identify the causes for these regional variations.

**Keywords:** all-cause mortality, performance, quality indicators

#### LO086

##### The utility of an inpatient diagnosis-derived Charlson Comorbidity Index to create an emergency department workload model

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**Introduction:** A previous Canadian emergency department (ED) model determined predictors of increased workload using a manual chart review