impetus to continue and expand the CREMS program. Future studies will evaluate if the implementation of this program has reduced patient reliance on 911 requests for paramedic care as well as Emergency Department transports.
Keywords: emergency medical services

LO36

Out-of-hospital cardiac arrest in British Columbia: Ten years of increasing survival

B.E. Grunau, MD, MHSc, W. Dick, MD, MSc, T. Kawano, MD, F.X. Scheuermeyer, MD, C. Fordyce, MD, MSc, D. Barbic, MD, MSc, R. Straight, MEd, R. Schlamp, H. Connolly, J. Christenson, MD, St. Paul's Hospital and University of British Columbia Department of Emergency Medicine, Vancouver, BC

Introduction: Survival for victims of out-of-hospital cardiac arrest (OHCA) is typically between 8 and 12%. We sought to report the trends in survival in British Columbia (BC) over a 10-year period. **Methods:** The BC Resuscitation Outcomes Consortium prospectively collected detailed prehospital and hospital data on consecutive non-traumatic OHCAs from 2006 to 2016 within BC's four metropolitan areas. We included EMS-treated adult patients without DNR orders. To describe baseline characteristics we organized patient characteristics in three time periods: 2006-09, 2010-13, and 2014-16 (first and last periods reported below). The primary and secondary endpoints were survival at hospital discharge and return of spontaneous circulation (ROSC). We tested the significance of year-by-year trends in baseline characteristics, and performed multivariable Poisson regression, using calendar year as an independent variable, to calculate risk-adjusted rates for survival. **Results:** Between January 1, 2006 and March 31, 2016 there were a total of 26 433 non-traumatic OHCAs, with 15 145 included in this study. There were significant decreases in the proportion with initial shockable cardiac rhythms (28% to 23%) and bystander witnessed arrests (42% to 39%), however significant increases in the proportion with bystander CPR (40% to 49%) and ALS treatment (86% to 97%), and the median chest compression fraction (0.81 to 0.87). There was a significant increase in the median time until termination of resuscitation in those who did not achieve ROSC (27 to 32 minutes), and a significant decrease in the proportion of patients who were transported in absence of ROSC (17% to 6.5%). There was a significant improvement in achieving ROSC (44% to 48%; adjusted rate ratio per year 1.02, 95% CI 1.01 to 1.02) and survival at hospital discharge (10% to 14%; adjusted rate ratio per year 1.05, 95% CI 1.04 to 1.06). Both subgroups of initial shockable (adjusted rate ratio per year 1.04, 95% CI 1.03 to 1.05) and non-shockable (adjusted rate ratio per year 1.08, 95% CI 1.06 to 1.12) cardiac rhythms demonstrated survival improvement. **Conclusion:** Despite a significant decrease in those with initial shockable rhythms, out-of-hospital cardiac arrest survival in BC's metropolitan regions increased by approximately 40% over a 10-year period. During this time there were system changes and quality of care improvements as provided by bystanders and professionals.
Keywords: cardiac arrest, cardiopulmonary resuscitation

LO37

Routine application of defibrillation pads and time to first shock in prehospital STEMI complicated by cardiac arrest

S.L. Felder, BSc, MD, M. Davis, MSc, MD, Western University, Windsor, ON

Introduction: ST-segment elevation myocardial infarction (STEMI) remains a significant cause of morbidity and mortality in North America, with recent studies suggesting that between 4 to 11% of patients diagnosed with STEMI suffer an out-of-hospital-cardiac arrest (OHCA). Previously published research has shown that shorter time to initial defibrillation in patients with VF/VT OHCA increases functional survival. The purpose of this study is to assess whether the routine application of defibrillation pads in STEMI decreases the time to initial defibrillation in those who suffer OHCA. **Methods:** Ambulance call records (ACR) for patients diagnosed with STEMI in Middlesex-London in the prehospital setting from Jan 1, 2012 to Jun 30, 2016 were reviewed. Patients were included in the study if they were 18 years of age or older with a confirmed diagnosis of STEMI and suffered an OHCA with an initial shockable rhythm (VF or VT) while in paramedic care. The pre-pad protocol (routine application of defibrillation pads in STEMI patients) was implemented by Middlesex-London EMS in July 2014. If inclusion criteria were met, ACRs were reviewed to determine whether the pre-pad protocol was implemented and to extract the time to initial defibrillation and relevant demographic and event features. Associated hospital charts were reviewed to evaluate inpatient event features and survival. T-test was used to assess the difference between mean times to defibrillation. **Results:** 446 patients were diagnosed with prehospital STEMI. Of those, 11 patients experienced a paramedic witnessed cardiac arrest. Four of the 11 had defibrillation pads applied upon diagnosis of STEMI. In patients who received pre-pad application, the mean time to initial defibrillation was 17.71 sec, compared to 72.71 sec in patients who had pads applied following arrest (MD 54.97 sec CI 22.69 to 87.24 sec). All patients treated with the pre-pad protocol survived to discharge from hospital, while one patient in the routine care group died in the ED. **Conclusion:** Routine application of defibrillation pads decreases the time to initial defibrillation in STEMI patients who suffer OHCA. Larger studies are required to evaluate whether this decreased time to defibrillation translates into mortality benefit in this subset of patients who experience OHCA.
Keywords: cardiac arrest, ST-segment elevation myocardial infarction, pre-hospital

LO38

Hypoglycemia is a rare peri-seizure finding in pre-hospital patients

D. Eby, MD, PhD, J. Woods, BHSc, Western University, Owen Sound, ON

Introduction: Conventional wisdom states that hypoglycemia is a frequent peri-seizure phenomenon and must be tested for. Conventional wisdom also lists hypoglycemia as a cause of seizures. Recent literature disputes this. Paramedic medical directives continue to direct paramedics to determine the blood sugar level on all seizure patients. The purpose of this study was to determine the frequency of hypoglycemia in patients identified as having "seizure" as the primary or final problem code in Ambulance Call Reports (ACRs) from a large regional paramedic base hospital program. **Methods:** We conducted a retrospective analysis of iMedic platform, electronic ACRs, for a 2 year period (Jan 01, 2014 to Dec 31, 2015), from 8 Paramedic Services serving a rural and urban population of 1.4 million. 5854 calls, had "seizure" listed as a primary or final problem code. A 10% sample was generated using a random number table. ACRs were manually searched, data abstracted onto spread sheets, and the results analyzed using descriptive statistics (Wizard ver 1.8.16 for Mac). **Results:** 582 calls were analyzed. 430 (73.9%) were adults and 152 (26.1%) were paediatric (age <18). A blood sugar was determined in 501/582 (86.1%) of all calls; adults 388/430 (90.2%), peadiatric 113/152 (74.3%). The Glasgow Coma Score, when measured, was 15 in 280/575 (48.7%) cases. Seizures were witnessed by paramedics in 47/582 (8.1%) calls; adults 33/430 (7.7%), paediatric 14/152 (9.2%). In calls were paramedics witnessed a seizure a blood sugar was determined 36/47 (76.6%) of the time; adults 25/33 (75.8%), paediatric 11/14 (78.6%). Hypoglycemia (BS < 4.0 mmol/L in