

association between night shifts and OSCE scores while adjusting for gender and PGY. **Results:** A total of 136 OSCE scores were collected from 56 residents. PGY-5 residents had 37.1% (31.3 to 34.0%; $p < 0.01$) higher OSCE scores than those in PGY-1 with an average increase of 8.8% (7.5 to 10.1%; $p < 0.01$) per year. Working one or more night shifts in the three days before an OSCE reduced the total and communication scores by an average of 3.8% ($p = 0.04$) and 4.5% ($p = 0.04$) respectively. We observed a significant gender difference in the effects of acute shift work ($p = 0.03$). Working a night shift one night prior to an OSCE was not associated with total score among male residents ($p = 0.33$) but was associated with a 6.1% (-11.9 to -0.2; $p = 0.04$) decrease in total score among female residents. This difference was consistent across PGY and was primarily due to an 8.5% (-15.5 to -1.6%; $p = 0.02$) decrease in communication scores and a 6.7% (-13.1 to -0.3%; $p = 0.04$) reduction in GAS. **Conclusion:** Proximity to night shifts significantly impaired the performance of EM trainees in simulated resuscitation scenarios, particularly in the domain of communication. For female residents, the magnitude of difference in total scores after working such shifts one night prior to a resuscitation OSCE was approximately equal to the difference seen between residents one year apart in training.

Keywords: shiftwork, simulation, sleep deprivation

LO70

Do automatic external defibrillators improve rates of return of spontaneous circulation, survival to hospital discharge and favourable neurological survival in Canada?

D. Barbic, MD, MSc, B.E. Grunau, MD, F.X. Scheuermeyer, MD, W. Dick, MD, MSc, J. Christenson, MD, University of British Columbia, Vancouver, BC

Introduction: Survival for victims of out-of-hospital cardiac arrest (OHCA) is typically 8-12%. Recent evidence has shown that public access automatic external defibrillators (AED) may improve survival. The objectives of this study were to determine whether AEDs improve rates of return of spontaneous circulation (ROSC), overall survival, and favourable neurological survival (FNS) in Canada. **Methods:** The BC Resuscitation Outcomes Consortium prospectively collected detailed prehospital and hospital data on consecutive non-traumatic OHCA from 2011-2015 within BC's four metropolitan areas. We included all EMS-treated adult patients. Data were collected in accordance with recognized Utstein criteria. We described frequencies with counts, means and medians where appropriate, and the Z-test was used to compare population proportions. **Results:** We examined 7577 OHCA from 2011-2015. AEDs were deployed on 223 patients in this period (mean age 60.4 yrs [95% CI 45.7-75.1] and 83.9% male; non-AED OHCA mean age 66.2 yrs [48.4-83.8] and 67.3% male). Seventy seven percent of AED deployments occurred in public locations, 69.1% were witnessed by bystanders and CPR was initiated in 98.7% of these cases. Fifteen percent of non-AED OHCA occurred in public locations, 38.3% were bystander witnessed, and 45.4% received bystander CPR. AEDs delivered shocks to 61.4% of patients, and EMS crews found an initial shockable rhythm upon scene arrival in 60.5% of AED deployments (22.9% for non-AED cases). AED OHCA patients had higher rates of ROSC at any time (67.2% vs 47.6%; difference of 19.6% [12.9-26.2 $p < 0.01$]), and ROSC at ED arrival (61% vs 35.4%; difference of 25.6% [19.2-32.0 $p < 0.01$]). AED OHCA patients had higher rates of survival to hospital discharge (23.8% vs 8.5%; difference 15.3% [11.5-19.1 $p < 0.01$]). Detailed neurologic outcome data was not available for all patients, yet for those which it was available AED OHCA patients had improved outcomes (modified Rankin score < 2) compared to non-AED OHCA patients (9.0% vs 5.4%; difference 3.6% [0.6-6.6 $p < 0.02$]).

Conclusion: Automatic external defibrillators markedly improve rates of ROSC at any time, sustained ROSC at ED arrival, survival to hospital discharge, and FNS in Canada. Continued support for public access AED programs is essential to improve patient outcomes.

Keywords: cardiac arrest, automatic external defibrillator, survival

LO71

For patients suffering from out-of-hospital cardiac arrest, is survival influenced by the capabilities of the receiving hospital?

A. Cournoyer, MD, E. Notebaert, MD, MSc, L. De Montigny, PhD, M. Iseppon, MD, S. Cossette, PhD, L. Londei-Leduc, MD, Y. Lamarche, MD, MSc, D. Larose, MD, F. de Champlain, MD, J. Morris, MD, MSc, A. Vadeboncoeur, MD, E. Piette, MD MSc, R. Daoust, MD, MSc, J. Chauny, MD MSc, C. Sokoloff, MD, D. Ross, MD, Y. Cavayas, MD, J. Paquet, PhD, A. Denault, MD, PhD, Université de Montréal, Montréal, QC

Introduction: Patients suffering from out-of-hospital cardiac arrest (OHCA) are frequently transported to the closest hospital after return of spontaneous circulation (ROSC). Percutaneous coronary intervention (PCI) is often indicated as a diagnostic and therapeutic procedure following OHCA. This study aimed to determine the association between the type of destination hospital (PCI-capable or not) and survival to discharge for patients with OHCA and prehospital ROSC. We hypothesized that being transported to a PCI-capable hospital would be associated with a higher survival to discharge. **Methods:** The present study used a registry of adult OHCA between 2010 and 2015 in Montréal, Canada. We included adult patients with non-traumatic OHCA and prehospital ROSC. The association of interest was evaluated with a multivariate logistic regression model to control for demographic and clinical variables (age, gender, time of day, initial rhythm, witnessed arrest, bystander CPR, presence of first responders or advanced care paramedics, prehospital supraglottic airway placement, delay before paramedics' arrival). Assuming a survival rate of 40% and 75% of the variability explained by other factors included in the model, more than 1200 patients needed to be included to detect an absolute difference of 10% in survival between both groups with a power of more than 90%. **Results:** A total of 1691 patients (1140 men and 551 women) with a mean age of 64 years (standard deviation 17) were included, of which 1071 (63%) were transported to a PCI-capable hospital. Among all patients, 704 patients (42%) survived to hospital discharge. We observed a significant independent association between survival to discharge and being transported to a PCI-capable hospital (adjusted odds ratio [AOR] 1.46 [95% confidence interval 1.09-1.96]) after controlling for confounding variables. Having an initial shockable rhythm and presence of first responders also increased survival to discharge (AORs 3.67 [95% confidence interval 2.75-4.88] and 1.53 [95% confidence interval 1.12-2.09], respectively). **Conclusion:** Patients experiencing ROSC after OHCA could benefit from a direct transport to a PCI-capable hospital. This benefit might also be related to unmeasured interventions other than PCI these hospitals can provide (e.g. high-level intensive care or cardiovascular surgery).

Keywords: out-of-hospital cardiac arrest, percutaneous coronary intervention, survival

LO72

Implementation of an educational program to improve the cardiac arrest diagnostic accuracy of ambulance communication officers: a concurrent control before-after study

C. Vaillancourt, MD, MSc, A. Kasaboski, BSc, M. Charette, MSc, L. Calder, MD, L. Boyle, MD, S. Nakao, MD, D. Crete, M. Kline, R. Souchuk, N. Kristensen, G.A. Wells, PhD, I.G. Stiell, MD, MSc, Ottawa Hospital Research Institute, Ottawa, ON