

the time of resuscitation to be 100 kg or greater was deemed representative of “morbid obesity” for this analysis. All resuscitations were reviewed from electronic medical records (EMRs) completed by treating paramedics, alongside telemetry and defibrillation events recorded, transmitted, and analyzed in proprietary software (CODE-STAT, Physio-Control Corporation, Redmond, WA). ROSC was determined from both paramedic and hospital clinician EMRs reviewed by a paramedic researcher. **Results:** During the 5 month study period, paramedics involved treated 133 adults in sudden cardiac arrest involving perceived ventricular fibrillation that was treated with at least one defibrillation. 49/90 (54.4%) with weight <100 kg as estimated by paramedics at the time of resuscitative care achieved at least transient ROSC. Only 17/43 (39.5%) with estimated weight  $\geq$ 100 kg achieved any ROSC, despite paramedics authorized to perform defibrillations at higher joule energy settings for such weight. The OR for ROSC if <100 kg estimated weight is 1.83 (95% CI 0.87-3.83), though given limited sample size  $p = 0.11$ . **Conclusion:** While survival from out-of-hospital sudden cardiac arrest in adults is multi-factorial, the presence of morbid obesity, defined as estimated weight  $\geq$ 100 kg, trends towards less ROSC. Continued community health efforts to decrease the prevalence of morbid obesity in the adult population may confer improved ability to survive out-of-hospital sudden cardiac arrest.

**Keywords:** cardiac arrest, morbid obesity, return of spontaneous circulation

#### P059

##### **Paramedic compliance with a novel defibrillation strategy in a large, urban EMS system in the United States**

J.M. Goodloe, MD, L.D. Vinson, MD, M.L. Cox, B.D. Burns, MD, The University of Oklahoma School of Community Medicine, Tulsa, OK

**Introduction:** Emergency Medical Services (EMS) care confers distinct impact upon survivability from sudden cardiac arrest. Many studies have been conducted regarding EMS interventions for cardiac arrest, though fewer studies have been published detailing specific analysis of paramedic compliance with standing orders, particularly those involving a novel energy strategy in defibrillation. **Methods:** Adults in sudden cardiac arrest with resuscitation initiated, including at least one defibrillation, between July 1, 2016 and December 1, 2016 were enrolled. Education on a novel defibrillation strategy, involving weight-based joule settings and double sequential external defibrillation (DSED) was delivered in classroom and internet-accessed settings. Paramedics then performed hands-on practice in DSED. All resuscitations were reviewed from electronic medical records (EMRs) completed by treating paramedics, alongside telemetry and defibrillation events recorded, transmitted, and analyzed in proprietary software (CODE-STAT™, Physio-Control Corporation, Redmond, WA). All ECGs and defibrillation events were reviewed by an emergency physician to determine energy settings used by paramedics for determining the accuracy of compliance with protocol-based standing orders. **Results:** During the 5 month study period, the paramedics involved treated 133 adults in sudden cardiac arrest involving perceived ventricular fibrillation that was treated with at least one defibrillation. 76/90 (84.4%) with estimated weight <100 kg were treated with correct joule settings, though only 7/43 (16.3%) with estimated weight  $\geq$ 100 kg received all defibrillations at 360J as protocol-specified. 26/44 (59.1%) in refractory ventricular fibrillation, defined as requiring a fourth defibrillation, received DSED as protocol-specified. **Conclusion:** Paramedics, when specifically trained on a novel defibrillation strategy, involving both weight-based joule settings and use of DSED for refractory ventricular fibrillation, are inconsistently able to quickly and successfully incorporate that strategy in EMS

resuscitation care. Further educational endeavours are warranted to achieve higher defibrillation strategy protocol compliance.

**Keywords:** cardiac arrest, ventricular fibrillation, paramedic

#### P060

##### **Imaging practices of emergency physicians for low risk non-traumatic low back pain**

R. Hiranandani, MSc, M. MacKenzie, MD, D. Wang, MSc, E. Lang, MD, University of Ottawa, Ottawa, ON

**Introduction:** Included in the first list of recommendations from the Choosing Wisely Canada (CW) Emergency Medicine (EM) group was to avoid ordering lumbosacral radiographs for patients with non-traumatic low back pain (LBP) in the absence of red flags. It has been suggested that these lumbosacral radiographs lead to unnecessary ionizing radiation and increase emergency department (ED) wait times without improving patient outcomes. This study evaluates lumbosacral imaging practices of emergency physicians (EPs) in four urban EDs. **Methods:** Data was retrospectively collected from patients, ages 18-60 and CTAS codes 2-5, who presented with non-traumatic LBP from April 1, 2014 to March 31, 2016 to four urban EDs. The time frame included both pre- and post-CW recommendation. Patients considered high risk, specifically with PTT >40 s or INR >1.2 s, neurology/neurosurgery/spine consults, admission to hospital, and history of cancer, were excluded. The primary outcome was to establish lumbosacral radiograph usage rates for non-traumatic LBP. The secondary outcome was to identify factors that influenced lumbosacral spine imaging. Factors analyzed included patient age, patient sex, ED wait times, physician age, physician experience, and physician sex. Statistical significance was determined by chi-squared analysis. **Results:** The data from 3140 low-risk patients showed that 16.5% of the patients received lumbosacral radiographs. Physician variation in X-ray ordering was 0% to 85.7% (IQR 4.6 to 25%). There was a significant difference between the X-rays ordered at each site (site 1 (23.1%) > site 2 (17.2%) > site 3 (14.9%) > site 4 (11.3%),  $p < 0.001$ ). CCFP-EM licensed physicians (17.9%) ordered more X-rays compared to licensed physicians (13.7%,  $p < 0.001$ ). Time of presentation, physician sex, and patient sex did not affect the imaging practices. There was a trend towards decreased ordering of X-rays (17.6% vs. 15.1%,  $p = 0.06$ ) post-CW recommendation. **Conclusion:** Considerable variation exists in the ordering practices of Calgary EPs; however, on average they are choosing wisely in terms of ordering imaging for non-traumatic LBP.

**Keywords:** non-traumatic low back pain, lumbosacral imaging, Choosing Wisely

#### P061

##### **Preventable adverse drug events in Canadian emergency departments**

C.M. Hohl, MD, CM, MHSc, S. Woo, BSc(Pharm), A. Cragg, MSc, C.R. Ackerley, BA, M.E. Wickham, MSc, D. Villanyi, MD, BSc, F.X. Scheuermeyer, MD, University of British Columbia, Vancouver, BC

**Introduction:** Adverse drug events (ADEs), unintended and harmful events associated with medications, cause or contribute to 2 million emergency department (ED) visits in Canada each year. Our **objective** was to determine the proportion of preventable ADEs by event type, severity, drug and drug class, and describe associated factors. **Methods:** We reviewed the charts of ADE patients enrolled in 1 of 3 prospective studies conducted in 3 tertiary care and 1 urban community ED. In the parent studies, researchers enrolled patients by applying a systematic selection algorithm to minimize selection bias, and physicians and