

## AN ANALYSIS OF HOMELESS PATIENTS IN THE UNITED STATES REQUIRING ICU ADMISSION

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**Learning Objectives:** Homeless patients in the United States are at increased risk for acute illnesses. However, the impact of homelessness on mortality and length of stay (LOS) in patients admitted to an Intensive Care Unit (ICU) is understudied. **Methods:** A retrospective observational study was conducted using data from the multi-center Premier Perspective Database from 2010 to 2011. Study inclusion criteria included being age 18 or older and in the ICU by Day 2. The primary outcomes were in-hospital mortality and LOS. LOS was analyzed for survivors only as a sensitivity analysis. Homeless patients were identified by ICD-9 code V60.0. Using ICD-9 codes, three subpopulations were identified: sepsis patients treated with antibiotics by Day 2, patients with pneumonia present on admission, and patients with an Alcohol or Drug related DRG. We used multivariable logistic regression to predict mortality and multivariable generalized regression with a logarithmic link function to predict LOS. All models adjusted for age, demographics, insurance type, Elixhauser comorbidities, organ supportive therapies and other treatments. **Results:** 781,540 patients met inclusion criteria. 2,278 (0.29%) were homeless. There were 93,059 sepsis patients (230 (0.3%) homeless), 68,817 pneumonia patients (190 (0.3%) homeless), and 35,620 with Alcohol or Drug DRGs (628 (1.8%) homeless). The regression models showed no significant difference in mortality between homeless and non-homeless patients in the three groups. However, LOS was substantially longer in homeless patients with sepsis (4.2 days longer, 95% CI (1.8, 6.5),  $p < 0.001$ ) and pneumonia (2.1 days longer, 95% CI (0.3, 4.0),  $p = 0.03$ ). LOS did not differ in the Alcohol and Drug related DRG group. The sensitivity analysis on LOS for survivors produced similar findings. **Conclusions:** Critically ill homeless patients with sepsis or pneumonia had longer lengths of stay than in non-homeless patients but LOS did not differ in patients with alcohol or drug related diagnoses. Homelessness was not associated with increased mortality in these critically ill groups.

## CONSENT AND CO-ENROLLMENT IN A MULTICENTER PILOT RCT OF EARLY IN-BED CYCLING IN VENTILATED PATIENTS

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**Learning Objectives:** Objective: To understand consent and coenrollment for patients enrolled in the CYCLE Pilot randomized clinical trial (RCT). CYCLE is a 7-center study of in-bed cycling started within 4 days of mechanical ventilation in medical-surgical intensive care unit (ICU) patients (CYCLE, NCT02377830). We randomly allocated patients to cycling and routine physical therapy interventions versus routine physical therapy interventions alone provided by clinical front-line physical therapists (PTs). **Methods:** We included all patients screened for CYCLE and report all consent encounters. Of those enrolled in CYCLE, we identified those coenrolled in other concurrent studies. Our consent rate was the number of patients enrolled in CYCLE as a proportion of all persons approached. We recorded the number of coenrolled patients, types of other studies, and funding sources. **Results:** Between March 2015 and June 2016, 7 sites screened 869 patients, 606 fulfilled  $\geq 1$  exclusion criteria, 263 were eligible, and 197 were eligible non-randomized (ENR). Of 78 patients or substitute decision makers approached to participate, 66 (85%) consented for CYCLE. Of 197 ENR patients, the majority (91, 46%) were excluded because  $\geq 1$  patient was already enrolled in CYCLE and PTs could not accommodate another trial patient. Of 66 study participants, 24 (36%) were coenrolled in at least 1 of 9 different studies. Of these 9 studies, 6 (67%) were RCTs, and 7 (78%) had academic funding. All 7 sites coenrolled  $\geq 1$  patient in CYCLE and another ongoing study in their respective ICUs. **Conclusions:** Overall, CYCLE had a high consent rate of 85%, indicating acceptability by patients and SDMs. Strategies to augment PT capacity for the future full CYCLE RCT are needed to maximize enrollment. Our coenrollment rate was somewhat higher than that reported by some other multicenter ICU trials.

## A NATIONAL STUDY OF CRITICAL CARE SERVICES PROVIDED PRIOR TO EMERGENCY DEPARTMENT TRANSFER

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**Learning Objectives:** Emergency departments (EDs) are an important entry point for critically ill patients in our healthcare system. Many smaller, community based hospitals may lack the facilities or technical expertise to provide inpatient critical care for some patients, necessitating inter-facility transfer. Often critical care, including resuscitative treatment and procedures, are provided in the ED prior to transfer. The characteristics of such inter-facility transfers are not well-defined. The purpose of this study was to describe visits with ED critical care services prior to inter-facility transfer in the United States. **Methods:** This study is a secondary analysis of the 2013 HCUP National Emergency Department Sample (HCUP-NEDS). The HCUP-NEDS is a nationally representative estimate of all ED visits in the United States. We used the NEDS sample design to generate a nationally representative estimate of patients who received critical care services, defined as current procedural terminology (CPT) codes 99291 or 99292. We limited our results to patients transferred to another short term hospital. Our analyses adjusted for sample weighting to provide nationally representative estimates, and we present descriptive statistics. **Results:** We identified 1,029 emergency department visits that were transferred after receiving critical care, representing 5,212 visits nationally. The mean age was 52.5, and 47.8% were male. The EDs were 34.9% rural and 37.3% had visit volumes  $< 20,000$ . The most common primary diagnoses in transfers who received critical care were nonspecific chest pain in 51 (4.8%) visits, acute cerebrovascular disease in 43 (4.2%), pneumonia in 33 (3.2%) visits, acute myocardial infarction in 31 (3.0%) visits, abdominal pain in 27 (2.6%) visits, and cardiac dysrhythmias in 28 (2.6%) visits. Overall 19.1% were associated with presence of injury. **Conclusions:** We estimate nearly 5,200 ED visits receive critical care services before inter-facility transfer from the ED. The large percentage of transfers for nonspecific chest pain may indicate that cardiac critical care resources are lacking at many centers.

## CLINICAL EFFECTS OF SYNTHETIC CANNABINOID EXPOSURE IN PATIENTS ADMITTED TO THE INTENSIVE CARE UNIT

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**Learning Objectives:** Patients are increasingly presenting with serious medical complications from Synthetic Cannabinoid (SC) use, requiring intensive care unit (ICU) admission. This study characterizes the clinical presentation and hospital course of patients with suspected or confirmed SC exposure requiring ICU admission. **Methods:** Retrospective case series of patients admitted to the medical or cardiac ICUs of an urban tertiary care center with suspected or confirmed SC exposure from January 1st to December 31st, 2015. Demographic variables, Sequential Organ Failure Assessment (SOFA) scores, and clinical parameters documenting the effects, and hospital course were recorded. **Results:** Twenty three patients met inclusion criteria. Median age was 47 (Inter-Quartile Range [IQR], 32-54); 82.6% were male; 78.3% were black. Patients were most commonly tachycardic (56%) and hypertensive (65%) on admission; none were febrile. The initial CXR and ECG were abnormal in 43.4% and 68.4% of patients respectively. 8.7% had myocardial infarction resulting in heart catheterization. Brain imaging was abnormal in 5% of patients. The most common concomitant exposures were marijuana (30.4%) and benzodiazepines (26.1%). SOFA scores peaked on admission at 6 and decreased over the next 3 days, rising thereafter for patients requiring continued ICU care. SOFA scores were primarily driven by neurologic status and respiratory failure. Over 30% of patients had seizures as a part of presentation. 91% required mechanical ventilation, 18.2% required vasopressors, and 5% needed dialysis. Other invasive procedures included central and arterial lines (8.7%), lumbar puncture (4.3%), and heart catheterization (8.7%). Median hospital and ICU lengths of stay were 2.6 (IQR 1.4-3.5) and 1.6 (IQR 0.9-2.5) days, respectively. The mean hospital charge was \$49140. All patients survived the index hospitalization with 1 patient dying on a subsequent hospitalization during the study period. **Conclusions:** Synthetic cannabinoid exposure can result in serious adverse effects and significant organ dysfunction, particularly neurologic and respiratory.