

## **UC Irvine**

### **Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health**

#### **Title**

Energy Drink Exposures Reported to Texas Poison Centers: Adverse Incidents in Relation to Sales

#### **Permalink**

<https://escholarship.org/uc/item/1749p5pk>

#### **Journal**

Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health, 18(6.1)

#### **ISSN**

1936-900X

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#### **Publication Date**

2017

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## 14 Opioid Prescribing: Where Should Academic Emergency Departments Focus Their Efforts?

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**Objective:** We sought to analyze the current state of opioid prescribing practices by trainees at an academic medical center, seeking a basis for future educational efforts.

**Design and Methods:** Our retrospective, observational study was performed at a single academic ED with an annual census of 61,289 visits. We extracted from the electronic health record (EPIC) all 6,962 opioid prescriptions attributed to the ED during 2015, excluding error prescriptions. Overall prescribing by opioid class was performed. Prescriptions written by EM trainees were categorized by post-graduate year (PGY) and compared to other prescribers. We analyzed prescribing patterns for recurrent visits.

**Results:** Of the 6,962 opioid discharge prescriptions, 5,515 were written by EM providers. No refills were provided. A mean of 15.4 pills (95% C.I. 13.9-16.9) were prescribed. ANOVA did not detect a significant difference between mean numbers of pills prescribed by EM providers. However, there was a significant difference between EM and non-EM prescribers. Less-experienced EM providers exhibited greater variability with regard to class and preparation. We found that 389 prescriptions were written for patients who received at least one other opioid prescription in the preceding 30 days. The number of pills dispensed decreased with increasing prior visits.

**Conclusion:** EM trainees prescribe short courses of opiates regardless of PGY. Patients returning to the ED received fewer pills on subsequent visits. Non-EM providers prescribe larger numbers of pills per prescription. This information will assist with future educational efforts to comply with new laws and guidelines.

## 15 A Systematic Review of Fitness Requirements for DMAT Teams

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**Objective:** In the United States, trained and credentialed teams of disaster responders may be rapidly deployed to assist with search and rescue efforts and to provide essential medical care. This fieldwork is physically and mentally demanding, placing team members themselves at risk. On

prior deployments, many team members have sustained injury or illness requiring medical attention and, in some cases, extraction for off-site treatment. Our goal was to review the publicly available physical fitness requirements for disaster responders serving on disaster medical assistance teams (DMATs) in the U.S.

**Methods:** In order to describe the physical fitness requirements for DMAT responders we undertook a systematic review of all officially sanctioned DMAT teams in the U.S. that have publicly available websites. We did a search engine query for “[State/territory] DMAT” and “[State/territory] disaster medical assistance team,” reviewing the first three pages of results.

**Results:** Of the 57 DMATs identified, 31 had publicly available websites. Of these, six publish fitness requirements and one team requires a self-administered fitness assessment. Following is an overview of these requirements: DMAT 1, requires an affidavit; DMAT 2 provides a “Fitness Guide” with an overview of basic health and nutrition concepts; DMAT 3 lists required functional capabilities; DMAT 4 lists required functional capabilities by team position; DMAT 5 requires a self-administered fitness test and affidavit; and DMAT 6 requires a Health and Safety Assessment Plan, Human and Environmental Risk Assessment (HSAP, HERA).

**Conclusion:** It appears that no minimum physical fitness standards currently exist for federal disaster responders in the U.S. Individuals may deploy with unknown physical liabilities, placing themselves and team members at risk of illness, injury, or mission failure. Given the hazardous nature of deployment to disaster zones, which are by their very nature resource-limited and may be physically remote from care, efforts should be made to develop and standardize minimum fitness standards for responders across DMAT units and roles. Remediation protocols for responders in violation of requirements should also be established. By mitigating the risk of illness or injury to disaster responders, the likelihood of mission success and provider wellness can be increased.

## 16 Energy Drink Exposures Reported to Texas Poison Centers: Adverse Incidents in Relation to Sales

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**Objective:** The consumption of “energy drinks” has steadily increased since their market debut. With widely varying formulations, caffeine content and consumption patterns, caffeine toxicity has been observed. However, previous reports using poison center data could not estimate the incidence of acute toxicity due to lack of a denominator

(i.e., sales). These studies failed to distinguish among the multiple unique products characterized as “energy drinks” (beverages, shots, and concentrates) and are confounded with caffeine-containing supplements (caffeine tablets, workout powders). Energy beverages dominate the market.

**Design and Method:** We performed a five-year database query of single-substance exposures to products described as “energy drinks” on the Texas Poison Center Network’s database. We analyzed the data for product type, multiples of recommended serving size consumed (dose), adverse outcomes, management site, and demographics. Individual case report forms were reviewed for moderate or major outcomes or death. We obtained five years of Texas sales data for “energy beverages.”

**Results:** From 01/01/10-12/31/14, we recorded 855 exposures to all products characterized as energy drinks (excluding those with ethanol or without caffeine). Of those exposures, 291 (34%) resulted in no or minimal effects and 417 (49%) were judged to be nontoxic or minor exposures not followed to a known outcome. Sixty-four (7.5%) were coded as moderate, and four (0.5%) major with no deaths. Serious complications included two self-limited seizures and one brief episode of ventricular tachycardia. Of the moderate and major cases, 32 (47%) occurred in children and adolescents. Common findings included nausea, tachycardia, and tremors. Energy beverages were associated with three moderate and no major cases, none in children less than 17 years. For all energy beverages, incidence rates of calls to Texas poison centers for moderate and major outcomes were 0.58 and 0.053 per hundred million units sold, respectively.

**Conclusion:** Serious toxicity can occur after excessive use of caffeine-containing products. With substantial variability of products described as “energy drinks” in poison center data, misperceptions of toxicity in post-marketing surveillance exist. Readers must consider the limitations and potential errors inherent in the data collection and coding of aggregate poison center data.

## 17 Implementation of a Flow Nurse to Increase Emergency Department Space Utilization

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**Objective:** Emergency department (ED) volumes continue to increase, with space often being a barrier to throughput. Most EDs have a resource nurse who serves many functions including maximizing space utilization in the ED. This study was performed to analyze if a dedicated “flow nurse” would affect utilization of ED space.

**Design and Method:** This was a before and after study, conducted at an academic hospital that has an ED with 55

beds and 20 sanctioned hallway spaces, seeing a volume of ~57,000 patients a year. The before phase (07/01/2016-08/30/2016) involved having a resource nurse who served multiple functions, only one of which centered on ED throughput. The after phase (09/01/2016-10/31/2016) featured a separate “flow nurse” from 11AM to 11PM Monday through Friday. Their responsibility centered on maximizing space utilization in the ED and ensuring efficient throughput. The outcome measure we compared was the number of minutes per hour where there were more than five patients in the waiting room, no patients inside the ED waiting to be seen by physicians, and less than 56 patients in the ED under evaluation. We termed this the utilization metric (UM). We used linear regression to test for a significant association between the UM and the presence of a flow nurse adjusting for confounders such as day of week, hour of day and month. Another outcome measure we compared was the left without being seen (LWBS) rate. We performed Fisher’s exact test to test for significance.

**Results:** We compared a total of 1,032 hours, 516 in both the before and after group. The UM improved an average of 205 minutes for the 60 hours per week when a flow nurse was on duty. We performed linear regression with the UM as the dependent variable and with the independent variables of day of week, month, hour of day, and presence of flow nurse as covariates. Presence of flow nurse was significantly associated with an improvement of UM ( $p < 0.001$ ), even adjusting for the other covariates. The other significant variable, hour of day, had a  $p = 0.01$ . During the before phase a total of 4,022 patients were seen, with 87 LWBS (2.2%). The after phase had a total of 4,346 with 110 LWBS patients (2.5%). Fisher’s exact test yielded a  $p=0.25$ .

**Conclusion:** While the presence of a flow nurse did not significantly affect the rate of LWBS, it did significantly impact utilization of ED space to more effectively bring patients from the waiting room into the ED to be evaluated.

## 18 Bedside Ultrasonography for the Detection of Aortic Dissection in the Emergency Department

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**Objective:** Aortic dissection (AD) is a potentially life-threatening emergency requiring a high index of clinical suspicion. The most reliable diagnostic test is computed tomography (CT) angiography. Transthoracic echocardiography (TTE) has a lower sensitivity. We