

primary diagnosis field from the NEDS ICD-9-CM, indicating that drug poisoning was the primary reason for the visit. The following prescription opioids, sedatives, and tranquilizers were included: 965.02 (methadone); 965.09 (other narcotics including codeine, meperidine, morphine); 965.5 (pyrazole derivatives); 965.8 (pentazocine); 967.0 (barbiturates); 969.4 (benzodiazepine-based tranquilizers); 969.5 (other tranquilizers including hydroxyzine); 967.8 (other sedatives and hypnotics); and 967.9 (unspecified sedatives and hypnotics). Intentionality was determined by the presence of an External Cause of Injury Code (e-code) in the E850-E858 range (accidental poisonings by drugs, medicinal substances, and biologicals). We also examined the number of admissions, disposition, sex, age, expected payer, income, geographic region, charges, and procedures performed. SAS-Callable SUDAAN software was used to create unbiased standard errors and to produce weighted estimates.

**Results:** From 2006 to 2008, there were 437,940 ED visits by adults for poisoning by opioids, sedatives, and tranquilizers. Of these, 35% (154,804) were unintentional poisonings. The mean age of the sample was 43.3 years (43.1-43.5). Significantly more visits were made by females (59.7%; 95% CI 59.2-60.2% versus 40.3%; 95% CI 39.8-40.8%, males). Less than half (44.7%) were discharged from the ED and 49.9% were admitted to the same hospital, while 3.9% were transferred to another hospital. Approximately 27.6% of visits were from patients residing in communities with a median annual household income was less than \$38,999 and 17.9% of visits were from those > \$64,000. There were significantly more visits by those with private insurance (31.6%; 30.8-32.3%) compared to Medicare (23.2%; 22.7-23.8), Medicaid (19.6%; 18.9-20.3%), or self-pay (19.9%; 19.1-20.6%). Significantly more visits were made in the southern region (40.6%; 38.1-43.0%) compared to the Northeast (14.6%; 13.1-16.3%), Midwest (23.6%; 21.5-25.8%), and West (21.3%; 19.5-23.1). Only 3.1% of patients required intubation. The average charge per visit was \$2,957 (\$2,837-\$3,078) for those discharged and \$19,936 (\$19,158-\$20,713) for those admitted.

**Conclusion:** There were over 430,000 visits to EDs in the US from 2006-2008 for the primary diagnosis of poisoning by a prescription opioid, sedative or tranquilizer. The majority of the patients were female and over half were admitted to the hospital. Over 1/3 of cases were thought to be unintentional. Future studies should examine how to best prevent such poisonings and determine optimal screening and intervention programs for these patients.

## 85 Factors Associated With Frequent Users of Emergency Department Resources

Castillo EM, Brennan JJ, Chan TC, Killeen JP, Vilke GM/University of California, San Diego, San Diego, CA

**Study Objectives:** As fiscal resources continue to shrink and emergency department (ED) crowding increases, communities need to reallocate resources to optimally improve care of a region's patients. One issue is that of so-called frequent flyers, patients who disproportionately utilize acute service resources with frequent visits to EDs. The purpose of this study is to evaluate patient characteristics and patterns of use of frequent users of ED resources.

**Methods:** This is a retrospective multi-center cohort study of hospital ED visits between 2008 and 2010 using data submitted to the California Office of Statewide Health Planning and Development (OSHPD) from all 18 non-military acute care hospitals serving the San Diego region (population 3.2 million). Patients included in the inpatient discharge dataset who were admitted from an ED were extracted and merged with the ED discharge dataset to construct a complete ED utilization database. Patients without a valid patient identifier were excluded. Occasional users were defined as having 1 to 5 visits in a 12 consecutive month period over the study period. Frequent users were defined as having 6 to 20 visits and super users were defined as having more than 20 visits. Demographics and patterns of use were identified for the 3 patient populations. Two logistic regression models were developed to compare demographic characteristics, payer, and primary diagnoses between occasional users and frequent users and frequent users and super users. Odds ratios (ORs) and 95% confidence intervals (CI) are reported.

**Results:** During the study period there were 925,719 individual patients seen in area EDs resulting in a total of 2,016,537 visits. Of these, 895,489 (96.7% of all patients) were identified as occasional users who were responsible for 1,592,453 of the visits (79.0% of total visits), 28,569 individual patients were identified as frequent users responsible for 333,648 of all ED visits (3.1% of patients resulting in 16.5% of all visits) and 1,661 were identified as super users responsible for 90,436 visits (0.2%

of patients resulting in 4.5% of all ED visits). Respiratory and abdominal symptoms were the leading primary diagnoses for all 3 groups. Super users were significantly more likely to have Medi-Cal (35.1%) or be self-pay (22.3%) compared to occasional and frequent users (17.5%, 29.1% and 13.6%, 14.2%, respectively) during visits. In the regression model comparing frequent users to occasional users, pain diagnosis, heart failure diagnosis, and payer status had the highest associations with being a frequent user (pain, OR=13.5, 95% CI=12.8, 14.3; heart failure, OR=7.4, 95% CI=7.0, 7.7; Medi-Cal versus self-pay, 4.7, 95% CI=4.6, 4.9; Medicare versus self-pay, 4.2, 95% CI=4.0, 4.5). In the model comparing super users with frequent users, pain diagnosis and mental disorder diagnosis had the highest associations with being a frequent user (pain, OR=7.7, 95% CI=6.9, 8.6; mental disorder, OR=3.0, 95% CI=2.7, 3.4).

**Conclusion:** In this study of 18 EDs serving a large metropolitan area over a 3-year period, frequent users of acute emergency resources were responsible for a large and disproportionate share of ED visits. There were significant differences found in ED visit primary diagnosis and individual patient insurance coverage between occasional, frequent and super users of ED resources.

## 86 Magnitude of National Emergency Department Utilization By the Uninsured

Carlson JN, Menegazzi JJ, Callaway CW/University of Pittsburgh, Pittsburgh, PA

**Study Objectives:** Nearly 51 million uninsured people in the United States have limited access to health care. The emergency department (ED) functions as a safety net for the uninsured because no patient is denied care based on ability to pay. Much public rhetoric has characterized ED utilization by uninsured patients, but few objective data have been presented. Therefore, we estimated national ED utilization by uninsured patients, and compared uninsured and insured ED patients in terms of demographics, diagnostic testing, disposition and final diagnoses. Our primary hypothesis was that uninsured patients comprise a large proportion of ED visits. Secondary hypotheses were that types and severity of illnesses (by acuity level in minutes), and ED resource utilization were similar between groups.

**Methods:** Data from the most recent available National Hospital Ambulatory Medical Care Survey (NHAMCS) (2006-2009) were stratified by insurance coverage status. We excluded cases with missing insurance data. Visits with private insurance, Medicare, Medicaid, workers compensation and "other" were classified as "insured." Visits coded as no charge/charity and self-pay were classified as "uninsured." 'Immediate' and 1-15 minute categories were combined for triage acuity levels. Demographic data, diagnosis (ICD-9 codes), testing and procedures performed in the ED were tabulated for each visit. Weighted percentages provided by NHAMCS were used to estimate national rates for each variable.

**Results:** Of the 140415 ED visits in the NHAMCS dataset, 5330 (3.8%) did not report payment/insurance type and were excluded leaving 135,085 visits for analysis. These data estimate 475 million ED visits between 2006 and 2009, of which 78.9 million (16.6%) were made by uninsured patients. This is approximately 20 million uninsured ED visits annually (mean 19.7 million, range 18-21 million). Compared to patients with insurance, uninsured patients were more often male (51% versus 41.5%), younger (age 18-44, 66.2% versus 35.4%), and Black/African-American (26% versus 19.8%) ( $p<0.0001$ ). Uninsured patients had higher percentages of ED visits diagnosed with mental illness (7.9% versus 5.2%) and skin complaints (6.4% versus 4.4%) ( $p<0.0001$ ) while insured patients had higher rates of circulatory/cardiovascular (7.5% versus 4.1%) and respiratory diagnoses (14.6% versus 11.8%) ( $p<0.0001$ ). Uninsured patients presented with a greater percentage of lower acuity complaints than insured patients (<15 minutes 15.6% versus 18.8%,  $p=0.0005$ , 15-60 minutes 41.1% vs. 45.8%,  $p<0.0001$ , 61-120 minutes 28.6% versus 24.6%,  $p<0.0001$ , >120 minutes 14.7% versus 10.7%,  $p<0.0001$ ). Uninsured patients had blood tests (32.7% versus 40.9%,  $p<0.0001$ ), radiographic testing (39.6% versus 46.6%,  $p<0.0001$ ) and procedures (44.1% versus 50.6%,  $p<0.0001$ ) performed less frequently than patients with insurance. Less uninsured patients were admitted to the hospital (31.3% versus 34.2%,  $p=0.0043$ ).

**Conclusion:** Uninsured patients account for approximately 20 million, or 1 in 6, ED visits annually in the United States. Uninsured ED patients are distinct in terms of demographics, diagnoses and acuity. Uninsured patients receive fewer diagnostic tests and procedures and are admitted less frequently than those patients with insurance.