

Background: Misuse of prescription opioids continues to be a significant public health crisis globally. According to the Centers for Disease Control and Prevention (CDC), there were more than 72,000 overdose deaths in the United States (U.S.), with 49,068 involving an opioid.

Methods: The NPDS was queried for single substance opioid exposures that were reported to the U.S. PCs from 2011 to 2011. Cases with severe outcomes (SO) were defined as exposures that resulted in either a death or major clinical outcomes. We identified and descriptively assessed the relevant demographic and clinical characteristics. Poisson regression models were used to evaluate the trends in the number and rates (per 100,000 human exposures) of single substance opioid exposures resulting in SO. Percent changes from the first year of the study (2011) were reported with the corresponding 95% confidence intervals (95% CI). Logistic regression was utilized to study the risk markers of severe outcomes.

Results: Overall there were 308,202 single substance opioid-related cases reported to the U.S. PCs during the study period. The proportion of cases from ACH increased during the study period (32.9% vs 48.9%). Among cases with severe outcomes, ages between 20 and 29 years (27.9%) constituted the most common age group. Males accounted for 57.4% cases. Most exposures with SO occurred in a residence (83.7%). Hydrocodone (25.6%) was the most common opioid reported in cases followed by oxycodone (18.7%). Intentional abuse (48.4% vs 12.7%) and suspected suicides (24.7% vs 12.9%) were more common in exposures with SO compared to those without SO. Similarly, non-oral routes of administration were more common in exposures with SO (40.9% vs 8.1%). The rate of exposures with SO increased by 71.3% (95% CI: 63.4%, 79.9%, $p < 0.001$). The risk of SO with single substance opioid-related exposures was the highest in cases between 50 and 59 years of age (Ref: 20 – 29 years) (AOR: 1.61, 95% CI: 1.52 – 1.71). Males were 16% more likely than females to have serious outcomes (AOR: 1.16, 95% CI: 1.12 – 1.20). The risk for severe outcomes with single substance opioid exposures was significantly elevated in hydrocodone (AOR: 2.43, 95% CI: 2.30 – 2.58), oxycodone (AOR: 1.64, 95% CI: 1.55 – 1.73) and tramadol (AOR: 1.80, 95% CI: 1.69 – 1.92) exposures. Other important predictors of a single substance opioid-related SO were suspected suicides (Ref: Unintentional exposure) (AOR: 3.82, 95% CI: 3.67 – 4.09), non-oral routes of administration (Ref: Ingestion) (AOR: 2.94, 95% CI: 2.80 – 3.00) and exposure in the west census region of the U.S. (Ref: Northeast region) (AOR: 1.21, 95% CI: 1.16 – 1.28).

Conclusion: The number of single substance opioid exposures cases handled by the PCs decreased, but those with severe outcomes increased significantly. Hydrocodone and oxycodone were the most common opioid reported for the

sample. Personalized evidence-based strategies, population level interventions, creation of protective environments, and better screening of patients are some key measure to limit this trend.

10 Patterns of SSRI Exposures Reported to the U.S. Poison Centers

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Objectives: We sought to characterize the SSRIs exposures reported to the U.S. National Poison Data System (NPDS).

Background: More than 20 million antidepressants were prescribed between October and December 2020, a significant increase compared to the same months in the prior year. In 2017, a selective serotonin reuptake inhibitors (SSRIs) was mentioned in 57,254 single-substance toxic exposures reported to United States poison centers (PCs).

Methods: The NPDS was queried for all human exposures to SSRIs reported to the U.S. Poison Centers (PCs) between 2015 and 2020. We descriptively assessed the demographic and clinical characteristics. Calls from acute care hospitals and hospital based EDs (ACH) were studied as a subgroup. Trends in SSRI exposures were analyzed using Poisson regression with percent changes being reported.

Results: There were 346,082 SSRI exposure calls made to the PCs from 2015 to 2020, with the number of calls increasing from 51,791 to 62,504 during the study period. Single substance exposures accounted for 45.5% of such SSRI exposures. Of the total SSRI calls, the proportion of calls from acute care hospitals and EDs decreased from 56.2% to 53.2% from 2015 to 2020. Multiple substance exposures accounted for 65.5% of the overall SSRI calls from acute care hospitals and EDs. Approximately 15% of the patients reporting SSRI exposures were admitted to the critical care unit (CCU), with 18.8% patients admitted to a psychiatric unit. Residence was the most common site of exposure (94.2%), and 63.9% of these cases were enroute to the hospital via EMS when the PC was notified. Among the patients, 66.7% were male, with individuals between ages 13 and 19 years (31%) predominantly reported SSRI exposures. Suspected suicides (58.5%) and therapeutic errors (18.6%) were commonly observed reasons for exposure, with the former accounting for 83% cases reported by ACH. Major effects were seen in 3.7% cases and the case fatality rate for SSRI was 0.3%. Sertraline was the most commonly observed SSRI (23.6%). The most frequently co-occurring substances associated with the cases were atypical antipsychotics (9.3%) and benzodiazepines (8%). Tachycardia (19.7%) and drowsiness/lethargy (15.6%) were commonly observed clinical effects. During the study

period, the frequency of SSRI exposures increased by 19.9% (95% CI: 16.2%, 22.7%; $p < 0.001$), and the rate of SSRI exposures increased by 23.1% (95% CI: 15.2%, 29.2%; $p < 0.001$).

Conclusion: There was a significant increase in the reports of SSRI exposures during the study with sertraline being the most commonly reported SSRI. Suspected suicides was the most common reason for exposure. Greater intervention and awareness initiatives are needed considering the severity of such overdoses.

11 Characterization of Oxycodone Misuse using National Survey Data.

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Objectives: The objective of the study is to characterize the risk markers of oxycodone misuse using the nationally representative National Survey of Drug Use and Health (NSDUH) data.

Background: Drug overdoses continues to be a public health crisis with 70,630 fatalities in 2019. Approximately two-thirds of these deaths (66%) involved a prescription or illicit opioid. Synthetic opioids accounted for 72.9% of opioid-involved overdose deaths in 2019.

Methods: The 2019 NSDUH public use cross-sectional data were analyzed. The respondents were classified into two groups, past year oxycodone misusers and non-misusers, based on the screening questions assessing past year misuse of oxycodone products. The prevalence of selected demographic, clinical factors and substance use and abuse, including prescription medications, was assessed descriptively for the two population groups using cross tabulated frequencies and chi-square tests. Logistic regression models using a backward selection process were used to identify predictors of oxycodone misuse adjusting for covariates. Adjusted odds ratios (OR) and corresponding 95% Confidence Intervals (CI) were calculated.

Results: Overall, the 2019 NSDUH survey comprised of 56,136 respondents, of which 4,359 respondents (7.7%) reported using oxycodone products over the last year. Furthermore, 770 respondents reported misuse, accounting for 17.6% of the total oxycodone users or 1.4% of the survey sample. The proportion of past year oxycodone misusers was higher in males (54.1% vs 44.6%, $p < 0.001$), unmarried (69.6% vs 44.8%, $p < 0.001$), and Hispanic (16.3% vs 13.4%, $p < 0.001$). Suicide ideation was much more frequent in oxycodone misusers (19.8% vs 10.1%, $p < 0.001$). The prevalence of use and misuse of other substances in the previous year was significantly higher in the oxycodone misusers. Previous year marijuana use (OR: 1.90, 95% CI: 1.41 – 2.57) was a significant predictor of oxycodone

misuse while morphine users were 40% less likely to misuse oxycodone (OR: 0.60, 95% CI: 0.37 – 0.98). Similarly, hydrocodone use reduced the risk of oxycodone misuse by 64% (OR: 0.36, 95% CI: 0.26 – 0.50). Self-reports of obtaining the oxycodone from sources other than the doctors increased the risk of oxycodone misuse by 96% (OR: 1.96, 95% CI: 1.38 – 2.81). Hispanics (OR: 1.34, 95% CI: 1.02 – 1.55) had a significantly higher probability to misuse oxycodone. Oxycodone misuse was significantly more likely among misusers of other opioids including morphine (OR: 5.19, 95% CI: 1.62 – 15.12) and buprenorphine (OR: 2.42, 95% CI: 1.12 – 5.25). Previous year benzodiazepines misusers (OR: 2.44, 95% CI: 1.62 – 3.67), stimulant misusers (OR: 2.68, 95% CI: 1.71 – 4.21) increased the risk for oxycodone misuse in the past year. Males (OR: 1.60, 95% CI: 1.19 – 2.14) and individuals receiving medications for mental health treatment reported a higher risk of oxycodone misuse (OR: 1.46, 95% CI: 1.02 – 2.09).

Conclusion: The current study used data from a nationally representative sample and indicated a high prevalence of oxycodone misuse. Our study highlighted risk factors associated with misuse of oxycodone, including gender, use and misuse of other substances including other opioids appear to be important predictors of oxycodone misuse. Tailored interventions and risk-screening measures to optimize oxycodone prescribing might be key in limiting the misuse and diversion of this pain medication.

12 Incorporating a Resident-Driven Mentorship Program into Emergency Medicine Clerkship Rotations

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Presenter: *Mahlaqa Butt*

Objectives: We launched an EM resident-driven mentorship program to help medical students excel in their clerkships, develop relationships, and navigate residency applications. We hypothesize that students will rate the mentoring positively and will report that it improved their performance.

Background: Mentorship is important for professional growth and success in medicine. There are few formal mentorship programs for medical students on audition rotations.

Methods: Students were assigned a self-selected EM resident mentor for their four-week clerkship at a single institution. Allopathic and osteopathic students were matched with residents from MD or DO schools, respectively. Mentors were instructed to review: patient presentations, differential diagnoses, clinical decision-