

Table 1. Adverse Effects of Phenybut Exposures.

Clinical Effects	Cases (N = 25)
Nausea/Vomiting	7
Diarrhea	1
Dizziness	1
Sedation	13
Agitation	4
Confusion	4
Hallucinations	0
Seizures	1
Tremors	2
Tachycardia	2
Bradycardia	4
Hypotension	2
Hypertension	3
Respiratory Depression	3

were acute ingestions (19 cases), however 7 cases were chronic ingestions with median time frame of 1 month (range 1.5 days – 1.5 months) and 4 cases met the criteria for suspected withdrawal. Effects from exposure are seen in Table 1. Treatment with benzodiazepines was given for 5 (14%) cases. Seven patients (20%) were managed at home, 11 patients (31%) were managed in the ED and 6 (17%) were admitted, including 2 (6%) who required intubation. The length of stay varied from less than 12 hours (7 cases; 20%) to 3 days (2 cases; 6%). Outcome was considered moderate in 8 patients (23%) and minor in 6 (17%).

Conclusions: Phenybut is an emerging sedative agent, causing a variety of toxic effects due to acute exposure or withdrawal. While some patients require admission and prolonged supportive care, most can be managed at home or discharged from the emergency department after a brief observation period. Poison control specialists and toxicologists should consider this emerging drug of abuse in the differential diagnosis of GABA agonist related toxidromes.

Keywords: Phenybut, Abuse, Phenylbutyric Acid
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179. Results of a Medicine Safety Program Pilot Targeting English, Spanish and Chinese Speaking Caregivers of Children Younger Than 6 Years Old

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Background: The Poison Center (PC) developed a medicine safety program targeting caregivers of young children based on findings from previous PC research analyzing parents' dosing errors and a literature review. We report the findings of pilot programs conducted with English, Spanish and Chinese-speaking caregivers of children younger than 6 years old.

Methods: One hour workshops were conducted by bilingual PC educators with native speaking parents/caregivers at community locations. Educational interventions were delivered with a target sample of 75 participants (25 in each language) using the medicine safety guidebook and instructor's manual. A 17 question pre-workshop survey asked 6 knowledge-based, 5 demographic, 4 behavior-based, 1 comfort calling the PC and 1 workshop related question. An 18 question follow-up telephone survey repeated the pre-test with an additional question to gather information about the workshop. The follow-up survey was conducted by phone at least two weeks after the session by a PC educator in the participants' native language. Participants received the medicine safety guide and a bag with PC information, an oral syringe, pen, coin purse and a magnet with the PC number. The pre and post data were analyzed (Chi-Square and T-test) for each language group.

Results: All three groups had a statistically significant increase ($p \leq 0.05$) in knowledge about who answers the PC calls and saving the PC number in their cell phone. Chinese and English speaking groups showed a significant increase in comfort calling the PC; while the English speakers had a significant increase in knowledge about active ingredients. The Chinese speakers had a significant increase in knowledge about dosing medicine based on weight. It was hard to detect statistical improvement on questions for the Spanish group because the follow up sample size was small ($n = 9$). After the workshop, participants reported that they were likely to use the medicine list (100%), emergency information sheet (96%), oral syringe (95%), and medicine communication log (72%).

Conclusions: Overall, the medicine safety program pilot was well received by participants and showed improvements in both knowledge and self-reported medication management strategies across languages. PC educators are incorporating the medicine safety program into outreach efforts across the catchment area.

Keywords: Education, Pediatric, Public health
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180. Decrease in Exposure Calls to Poison Centers: A Look at Opioid and Stimulant Drug Classes Over time By Age Group

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Background: Over the past few years the number of calls regarding opioid or prescription (Rx) stimulant to poison centers (PCs) have decreased. PCs serve as an important resource for the public and health care facilities in the medical management of poison exposures and drug information. The purpose of this study is to look at rates of calls over time for opioids and stimulants by age category.

Methods: Cases involving drugs of interest are received from participating PCs in the Researched Abuse, Diversion and Addiction-Related Surveillance (RADARS[®]) System Poison Center Program; data from 1Q2006- 4Q2014 were used. Cases involving stimulants were not captured until 4Q2007. Age was grouped by the following categories in years (yrs): 13-19 yrs, 20-29 yrs, 30-39 yrs, 40-59 yrs and 60 + yrs. The drugs of interest include Rx opioids (buprenorphine, fentanyl, hydrocodone, hydromorphone, methadone,

morphine, oxycodone, oxymorphone and tramadol) and Rx stimulants (amphetamines and methylphenidate). Intentional exposures (IEs) (suspected suicide, misuse, abuse, intentional unknown, and withdrawal) for the opioid and stimulant groups were examined. The age group specific population was calculated by interpolating/extrapolating the 2000 and 2010 US Censuses by age group. Population adjusted rates were calculated by dividing the total number of cases in each age group by the age group specific population for covered zip codes in that quarter. Poisson Regression was used to estimate the trend over time by age groups and drug type. A quadratic model was fit to determine if the rate dropped in the last few years.

Results: There were a total of 298,489 Rx opioid cases over the time period. For Rx opioids, there was a significant negative quadratic trend for each age group over the time period ($p < 0.0001$ for each age group) such that rates increased early in the time period followed by a decrease. The 20-29 yrs group had the highest rates throughout the period and the 60 + yrs group had the lowest rates. There were a total of 43,415 Rx stimulants cases over the time period. The trend in rates of stimulant exposures also followed a curvilinear pattern for each age group ($p < 0.0001$ for each group) except for the 60 + yrs group which followed an increasing linear trend ($p < 0.0001$). The 13-19 yrs group had the highest rates throughout the period followed by the 20-29 yrs group, the 30-39 yrs group, the 40-59 yrs group, and the 60 + yrs group.

Conclusion: Although population rates of IE to Rx opioids were highest among the 20-29 yrs age group, rates for each age group rose and then fell during the time period. Population rates of IE to Rx stimulants were highest among the 13-19 yrs age group throughout the period.

Keywords: opioids, prescription stimulants, intentional exposures

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181. Medication Disposal Habits Of Suburban Emergency Department Patients

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Objective: Consequences of incorrect medication disposal may contribute to accidental poisonings and environmental contamination. We sought to determine unused medication disposal methods by patients visiting a suburban emergency department.

Methods: Participants were selected from patients undergoing care in the emergency department (ED); 100 were enrolled. Inclusion criteria included English fluency and greater than 18 years of age. Cognitively impaired patients were excluded. All participants consented to completing the survey. We inquired about the following: basic demographic data, medication storage and disposal habits, the use and disposal of insulin syringes, medication expiration dates, and the awareness of area drop off centers for unused medications. Participants received a tutorial on proper medication storage and disposal and a list of local unused medication drop off centers following the survey.

Results: Mean age was 49 years, 48% were male; 58 Caucasian, 16 African American, 13 Asian, 8 Hispanic, 1 other; 24 completed post-graduate education, 38 college, 34 high school, and 2 grade school.

Table 1.

	Suburban ED (n = 100)
Rx Storage: Bathroom	60
Bedroom	28
Kitchen	5
Other	8
Expiration Date Awareness	66 (Rx = 88, OTC = 76)
Rx Disposal: Garbage	38
Toilet	29
Do not dispose Rx	21
Gave Rx away	4
Insulin Syringe Disposal	8/8 (5 container, 3 sharps box)
Rx Drop-off site	41 (41%)

Results are listed in table 1: 21 participants reported they do not dispose of unused medications, 3 gave medications to treat family members, and 1 participant gave unused medications "away." No participant sold unused medications.

Twenty-two participants dropped off unused medications at local pharmacies, 13 at "other" facilities, and 2 at police stations.

Conclusions: Forty-one percent of participants were aware of suburban unused medication drop off centers. The majority of participants (67%) were unaware of proper medication disposal. Only 66% of participants were aware of medication expiration dates. This study was conducted as follow-up to a study of unused drug disposal habits of patients in an urban hospital setting. Further study to determine the impact of education regarding appropriate medication storage and disposal is warranted.

Keywords: Disposal, Education, Expiration

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182. Pediatric Ingestion of Citalopram: What is a Safe Dose for Home Management?

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Background: Citalopram (Celexa[®]) was introduced into the marketplace in 1989 for the treatment of depression, and was approved by US FDA in 1998. Additional indications include panic disorder and OCD. The drug, a highly selective serotonin reuptake inhibitor (SSRI) with minimal effects on neuronal reuptake of norepinephrine and dopamine, acts by potentiating serotonergic activity in the CNS. Its safety and effectiveness in children have not been established, and information on its toxicity in pediatric patients is limited. We sought to establish a dose at which children under age 6 years could be safely managed without referral to a hospital.

Methods: We retrieved all cases involving the ingestions of citalopram by a child 6 years and younger from our poison center's electronic medical record system. Between 1/8/2000 and 12/27/2014, 466 cases meeting these criteria were received by this Regional Poison Center; 335 cases involved citalopram alone.

Results: Of the 335 cases of citalopram as a single drug, 89.9% were unintentional and 10.1% were therapeutic errors. The majority, 68.7%, were handled prehospital; 29.6% were in or referred to a health care facility (HCF). Of those in a HCF, 70.7% were treated and released.