



UNITED STATES
CONSUMER PRODUCT SAFETY COMMISSION
4330 EAST WEST HIGHWAY
BETHESDA, MD 20814

Memorandum

Date: January 9, 2017

TO : The File

THROUGH: Kathleen Stralka, Associate Executive Director
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SUBJECT : Unintentional Pediatric Poisoning Injury Estimates for 2015

In 2015, there were an estimated 86,400 emergency department-treated injuries involving unintentional pediatric poisonings. The annual average estimated number of emergency department-treated unintentional pediatric poisoning injuries across 2013–2015 is 84,600. Unintentional pediatric poisonings are poisonings and chemical burns¹ resulting from accidental access to a substance by a child under the age of 5. Adverse reactions, therapeutic errors, and exposures beyond the victim's control, which would not be impacted by the Poison Prevention Packaging Act (PPPA), were not included in the estimates. For a full specification of out-of-scope and in-scope cases, see the Methodology section.

Results

Staff found 2,694 cases involving unintentional pediatric poisonings in 2015, in the National Electronic Injury Surveillance System (NEISS). Based on these cases, staff computed a national estimate of 86,400 emergency department-treated injuries, with a coefficient of variance (C.V.) of 10.49 percent. The 95 percent confidence interval (C.I) for this estimate is 68,600 to 104,100. A breakdown of the estimate by diagnosis is shown in Table 1.

CPSC 6(b)(1) CLEARED for PUBLIC

✓ NO MFRS/PRVTBLRS OR
PRODUCTS IDENTIFIED

EXCEPTED BY: PETITION
RULEMAKING ADMIN. PRCDG

WITH PORTIONS REMOVED: _____

Am 1/27/17

¹ Chemical burns are included in this memorandum because many of the substances regulated by the Poison Prevention Packaging Act cause chemical burns. Examples of such substances include: tire cleaners, etching creams, drain cleaners, and oven cleaners.

*This analysis was prepared by CPSC staff and has not been reviewed or approved by,
and may not necessarily reflect the views of, the Commission.*

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Table 1: 2015 Emergency Department-Treated Unintentional Pediatric Poisoning Estimates by Diagnosis*

Diagnosis (Code)	Estimate	Cases	C.V.	95% C.I.
Poisoning (68)	82,300	2,581	9.91%	66,300–98,300
Chemical Burn (49)	4,100	113	28.20%	1,800–6,300
Total ²	86,400	2,694	10.49%	68,600–104,100

Source: National Electronic Injury Surveillance System, April 2016

* Adjusted to exclude adverse reactions, therapeutic errors, and exposures beyond the victim's control.

Table 2 gives a breakdown by year of the estimated emergency department-treated unintentional pediatric poisonings. Each diagnosis estimate and the total estimate were analyzed for a trend across years, but no statistically significant trend was found (the lowest p-value for all trends was 0.51). The directional year-to-year increases in chemical burns were not statistically significant. A greater number of laundry packet chemical burn incidents and a decrease in the number of incidents associated with other products, like toilet cleaners, general cleaners and bleach was apparent, although also not statistically significant.

Table 2: 2013–2015 Emergency Department-Treated Unintentional Pediatric Poisoning Estimates by Year*

Diagnosis (Code)	2013	2014	2015	Average
Poisoning (68)	76,700	83,100	82,300	80,700
Chemical Burn (49)	3,300	4,200	4,100	3,900
Total ²	80,000	87,400	86,400	84,600

Source: National Electronic Injury Surveillance System, April 2016

* Adjusted to exclude adverse reactions, therapeutic errors, and exposures beyond the victim's control.

In 2015, there were an estimated 70,600 emergency department-treated unintentional pediatric poisonings that occurred at home, or 82 percent of the total 86,400 emergency department-treated unintentional pediatric poisonings. An estimated 14,600 (17 percent) of the 2015 emergency department-treated unintentional pediatric poisonings occurred at an unknown location. The remaining injuries occurred at other locations, including streets, schools, playgrounds, and other public property.

Table 3 gives a breakdown, by the product involved, for the estimated emergency department-treated unintentional pediatric poisonings. Note that the product categories are not exclusive because it is possible for two different products to be associated with the same poisoning.

² Columns may not sum to totals, and average may not correspond exactly to totals, due to rounding.

Table 3: 2015 Emergency Department-Treated Unintentional Pediatric Poisoning Estimates by Top Ten Products*

Product	Estimate	C.V.	95% C.I.
Acetaminophen	10,200	14.51%	7,300-13,000
Blood Pressure Medications	8,300	17.65%	5,400-11,200
Laundry Packets	5,000	18.73%	3,200-6,900
Anti-Depressants	4,300	20.17%	2,600-6,000
Ibuprofen	4,300	19.29%	2,700-5,900
Bleach	3,500	18.47%	2,300-4,800
Sedatives and Anti-Anxiety Medications ³	3,400	17.73%	2,200-4,600
Narcotic Medications ⁴	3,400	22.24%	1,900-4,800
Diphenhydramine	3,000	19.89%	1,800-4,200
Unknown	3,100	15.30%	2,200-4,000

Source: National Electronic Injury Surveillance System, April 2016

* Adjusted to exclude adverse reactions, therapeutic errors, and exposures beyond the victim's control.

It can be seen from Table 4 that the emergency department-treated unintentional pediatric poisoning estimates decreased from calendar year 2014 to 2015, for most of the top 10 products (blood pressure medications, anti-depressants, bleach, narcotics medications, diphenhydramine and unknown drugs). Acetaminophen was ranked second as the cause of unintentional poisonings in 2014, but was the leading cause in 2015. Laundry packets increased from the sixth leading cause of unintentional poisoning in 2014, to the third leading cause of unintentional poisonings in 2015. Ibuprofen increased from seventh leading cause of unintentional poisonings in 2014, to the fifth leading cause of unintentional poisonings in 2015. The rank of sedatives and anti-anxiety medications changed, but the estimate remained the same.

Table 4: 2014 and 2015 Top Ten Products and Estimates for Emergency Department-Treated Unintentional Pediatric Poisoning*

2014	2015
Blood Pressure Medications (9,000)	Acetaminophen (10,200)
Acetaminophen (7,900)	Blood Pressure Medications (8,300)
Anti-Depressants (4,900)	Laundry Packets (5,000)
Bleach (4,600)	Anti-Depressants (4,300)
Narcotics Medications ³ (4,500)	Ibuprofen (4,300)
Laundry Packets (4,100)	Bleach (3,500)
Ibuprofen (3,800)	Sedatives and Anti-Anxiety Medications ⁴ (3,400)
Diphenhydramine (3,500)	Narcotic Medications ³ (3,400)
Sedatives and Anti-Anxiety Medications ⁴ (3,400)	Diphenhydramine (3,000)
Unknown (3,600)	Unknown (3,100)

* Adjusted to exclude adverse reactions, therapeutic errors, and exposures beyond the victim's control.

³ Benzodiazepines.

⁴ In previous reports (2011 and 2012), this category was referred to as anti-spasm medications, but according to Health Science's staff, narcotic medications is a better description of this product class.

Methodology

NEISS is a probability sample of approximately 100 U.S. hospitals having 24-hour emergency departments (EDs) and more than six beds. Staff in each hospital codes consumer product-related data from the ED record, and then the data are transmitted electronically to the CPSC. Because NEISS is a probability sample, each case collected represents a number of cases (the case's *weight*) in the total estimate of injuries in the United States. Different hospitals carry different weights, based on stratification by their annual number of emergency department visits (Kessler and Schroeder, 1999).

Hazard Analysis staff searched NEISS for all incidents with the poisoning diagnosis (code 68) or the chemical burn diagnosis (code 49) involving children under the age of 5. All incidents were examined by Health Sciences staff to identify cases that were not unintentional exposures, but were generally associated with a prescribed therapeutic regimen, or an unforeseen incidental exposure from a situation outside the victim's control. These types of cases, delineated below, are out-of-scope cases because they do not directly involve a child independently accessing a poison.

1. *Adverse Reactions*: This includes undesirable effects that occur with the proper use of a substance (*e.g.*, drowsiness after administration of an antihistamine). Allergic, hypersensitivity, or idiosyncratic reactions to recommended doses of vaccines, antibiotics, or other medications are also included in this category.

2. *Therapeutic Errors*: Unintentional mistakes made during a prescribed or recommended course of treatment, such as: (1) a caregiver administering the wrong substance or an overdose (*e.g.*, two tablespoons instead of two teaspoons) to the patient; (2) a pharmacist mislabeling the dosage instructions on a prescription; or (3) a caregiver giving medication to the wrong child.

3. *Incidental Exposures*: This category refers to exposures resulting from a situation beyond the control of the victim. Examples include exposures to: (1) chlorine fumes from a pool; (2) gas fumes while in a dwelling or an automobile; (3) gasoline while it is being pumped into an automobile; or (4) illicit drugs (*e.g.*, cocaine, methamphetamine, marijuana) while the caregiver is using or producing them.

Hazard Analysis staff used SAS[®] version 9.4 to manage and retrieve data and to compute estimates and the associated C.V. for the number of unintentional pediatric poisoning injuries. A C.V. is the ratio of the standard error of the estimate (*i.e.*, variability) to the estimate itself. This is generally expressed as a percent. A C.V. of 10 percent means the standard error of the estimate equals 0.1 times the estimate.

NEISS data does not typically identify all of the contributing factors to unintentional pediatric poisoning injuries. CPSC continues public outreach efforts to help manufacturers comply with the PPPA and to remind consumers about the need to keep products in their original child-resistant packaging and out of the reach of children.

CC: George Borlase, EXHR; Jacqueline Ferrante, HS