



United States  
**Consumer Product Safety Commission**

# Annual Report on Pediatric Poisoning Fatalities and Injuries

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*This report was prepared by the CPSC staff.  
It has not been reviewed or approved by,  
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## Executive Summary

Unintentional poisonings from drugs and other household chemical substances pose a hazard to everyone, including children younger than 5 years of age. To address this hazard, Congress passed the [Poison Prevention Packaging Act](#) (PPPA) in 1970. Under the PPPA, the U.S. Consumer Product Safety Commission (CPSC) has issued regulations that require child-resistant packaging for about 30 categories of medicines and hazardous household products.<sup>1</sup> In this report, CPSC staff presents the latest available statistics on pediatric poisoning fatalities and injuries.

Based on mortality data from the National Center for Health Statistics (NCHS), CPSC staff identified that pediatric poisonings involving children under 5 years of age resulted in:

- Fifty-nine fatalities in 2021, a 37-percent increase from 2020; and
- Ninety-eight fatalities in 2022<sup>2</sup>, a 66-percent increase from 2021.

The fatalities in 2021 and 2022 and the increases in fatalities in these years compared to prior years were mostly related to ICD-10 codes X42 (narcotics and psychodysleptics, not elsewhere classified) and X44 (other and unspecified drugs, medicaments, and biological substances). From 2021 to 2022, pediatric poisoning fatalities increased from 33 to 59 under ICD-10 code X42, and from 16 to 19 under ICD-10 code X44.

Based on injury data from the National Electronic Injury Surveillance System (NEISS), staff identified that unintentional pediatric poisonings among children under 5 years of age resulted in:

- An estimated 62,600 emergency department (ED)-treated injuries in 2021, an increase from the estimated 61,500 injuries in 2020; and
- An estimated 68,600 ED-treated injuries in 2022, an increase from the estimated 62,600 injuries in 2021.

Notably, the estimated injuries from pediatric poisonings among children under 5 years of age involving acetaminophen, ibuprofen, and narcotics medications increased from 2021 to 2022, with acetaminophen increasing from an estimated 4,700 related ED-treated injuries to 5,700, ibuprofen increasing from an estimated 2,000 related ED-treated injuries to 3,600, and narcotics medications increasing from an estimated 1,200 related ED-treated injuries to 2,500.

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<sup>1</sup> The Child Nicotine Poisoning Prevention Act of 2015 (CNPPA), Public Law No. 114-116, requires any nicotine provided in a liquid nicotine container, sold, offered for sale, manufactured for sale, distributed in commerce, or imported into the United States shall be packaged in accordance with the standards of the PPPA. Battery ingestions, resulting in exposure to hazardous chemicals, are not in-scope for this report.

<sup>2</sup> Mortality data for 2022 are provisional and may be incomplete due to delays in reporting and should be considered to represent only a minimum number.

## Fatality Data

Death counts for 1972 through 1996 are from a previous report prepared by CPSC’s Directorate for Health Sciences staff.<sup>3</sup> Death counts for 1997 through 2022 are based on data from the NCHS that are coded using the International Classification of Diseases (ICD).<sup>4</sup> Population data were obtained from the U.S. Census Bureau. More information on the data sources is available in Appendix A: Methodology.

In 2022, there were 98 fatalities involving unintentional pediatric poisonings, a sizeable increase when compared to recent years. Nevertheless, the fatalities for children younger than age 5 have declined substantially since Congress founded the CPSC in 1972, from an annual average of about 167 deaths in the 1972 to 1974 timeframe, to an annual average of about 67 deaths in the 2020 to 2022 timeframe. However, the last two years have seen deaths increase to levels not seen since 1991. Table 1 and Figure 1 show the detailed death counts by year from 1972 to 2022.

**Table 1: Pediatric Poisoning Fatalities Among Children Under 5, 1972 – 2022**

| Year | Deaths | Percent Decrease Since 1972 | Death rate per million |
|------|--------|-----------------------------|------------------------|
| 1972 | 216    | 0%                          | 12.64                  |
| 1973 | 149    | 31%                         | 8.85                   |
| 1974 | 135    | 38%                         | 8.20                   |
| 1975 | 114    | 47%                         | 7.07                   |
| 1976 | 105    | 51%                         | 6.72                   |
| 1977 | 94     | 56%                         | 6.04                   |
| 1978 | 81     | 63%                         | 5.14                   |
| 1979 | 78     | 64%                         | 4.85                   |
| 1980 | 73     | 66%                         | 4.47                   |
| 1981 | 55     | 75%                         | 3.26                   |
| 1982 | 67     | 69%                         | 3.89                   |
| 1983 | 55     | 75%                         | 3.13                   |
| 1984 | 64     | 70%                         | 3.62                   |
| 1985 | 56     | 74%                         | 3.14                   |
| 1986 | 59     | 73%                         | 3.28                   |
| 1987 | 31     | 86%                         | 1.72                   |
| 1988 | 42     | 81%                         | 2.31                   |
| 1989 | 55     | 75%                         | 2.97                   |
| 1990 | 49     | 77%                         | 2.60                   |
| 1991 | 62     | 71%                         | 3.23                   |
| 1992 | 42     | 81%                         | 2.15                   |
| 1993 | 50     | 77%                         | 2.53                   |

<sup>3</sup> Memorandum from Susan Aitken, Ph.D., to Kenneth P. Giles, dated 29 Jan 1999: “National Center for Health Statistics (NCHS) Data on Pediatric Fatalities for 1996.” U.S. Consumer Product Safety Commission, Washington, D.C.

<sup>4</sup> Not all these incidents are addressable by an action the CPSC could take. It is not the purpose of this report to evaluate whether the incidents can be addressed, but rather, to update the death counts associated with pediatric poisonings.

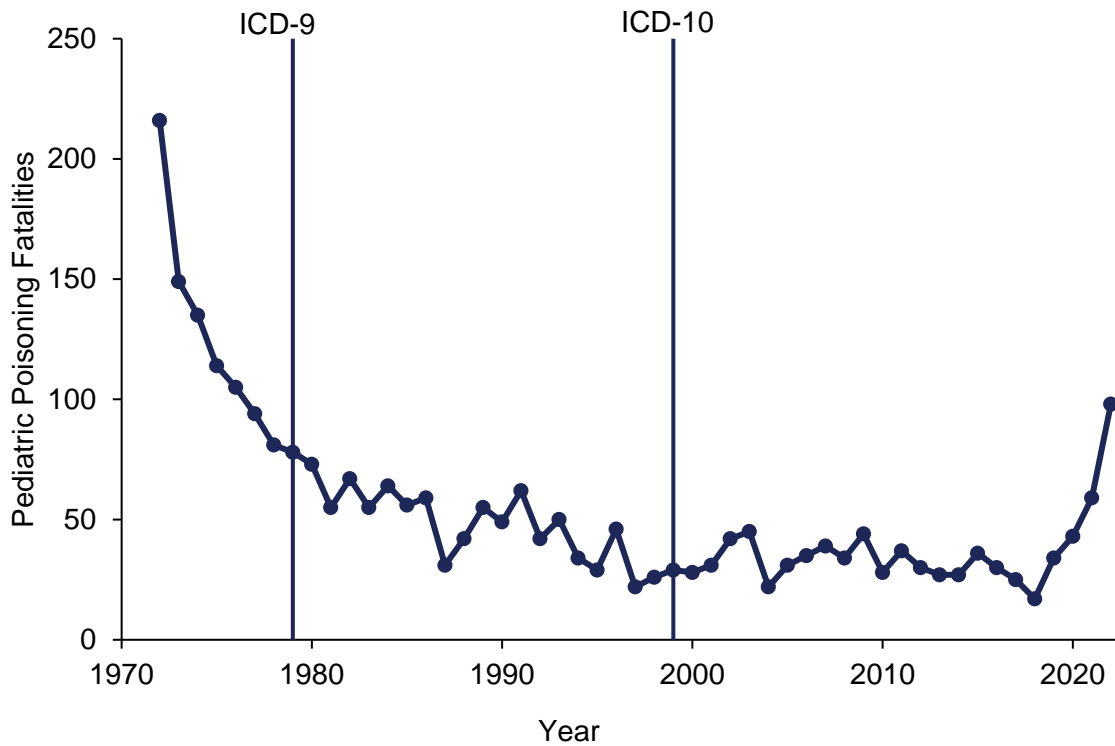
| Year | Deaths | Percent Decrease Since 1972 | Death rate per million |
|------|--------|-----------------------------|------------------------|
| 1994 | 34     | 84%                         | 1.72                   |
| 1995 | 29     | 87%                         | 1.48                   |
| 1996 | 46     | 79%                         | 2.37                   |
| 1997 | 22     | 90%                         | 1.15                   |
| 1998 | 26     | 88%                         | 1.37                   |
| 1999 | 29     | 87%                         | 1.53                   |
| 2000 | 28     | 87%                         | 1.48                   |
| 2001 | 31     | 86%                         | 1.60                   |
| 2002 | 42     | 81%                         | 2.15                   |
| 2003 | 45     | 79%                         | 2.28                   |
| 2004 | 22     | 90%                         | 1.10                   |
| 2005 | 31     | 86%                         | 1.55                   |
| 2006 | 35     | 84%                         | 1.71                   |
| 2007 | 39     | 82%                         | 1.89                   |
| 2008 | 34     | 84%                         | 1.62                   |
| 2009 | 44     | 80%                         | 2.07                   |
| 2010 | 28     | 87%                         | 1.39                   |
| 2011 | 37     | 83%                         | 1.83                   |
| 2012 | 30     | 86%                         | 1.50                   |
| 2013 | 27     | 88%                         | 1.36                   |
| 2014 | 27     | 88%                         | 1.36                   |
| 2015 | 36     | 83%                         | 1.81                   |
| 2016 | 30     | 86%                         | 1.51                   |
| 2017 | 25     | 88%                         | 1.26                   |
| 2018 | 17     | 92%                         | 0.86                   |
| 2019 | 34     | 84%                         | 1.74                   |
| 2020 | 43     | 80%                         | 2.23                   |
| 2021 | 59     | 73%                         | 3.13                   |
| 2022 | 98     | 55%                         | 5.29                   |

Note: The horizontal lines indicate when the World Health Organization switched from using ICD-8 to ICD-9 in 1979, and when it switched from using ICD-9 to ICD-10 in 1999.

Data for 2022 are provisional and may be incomplete due to delays in reporting.

Source: National Center for Health Statistics and U.S. Census Bureau.

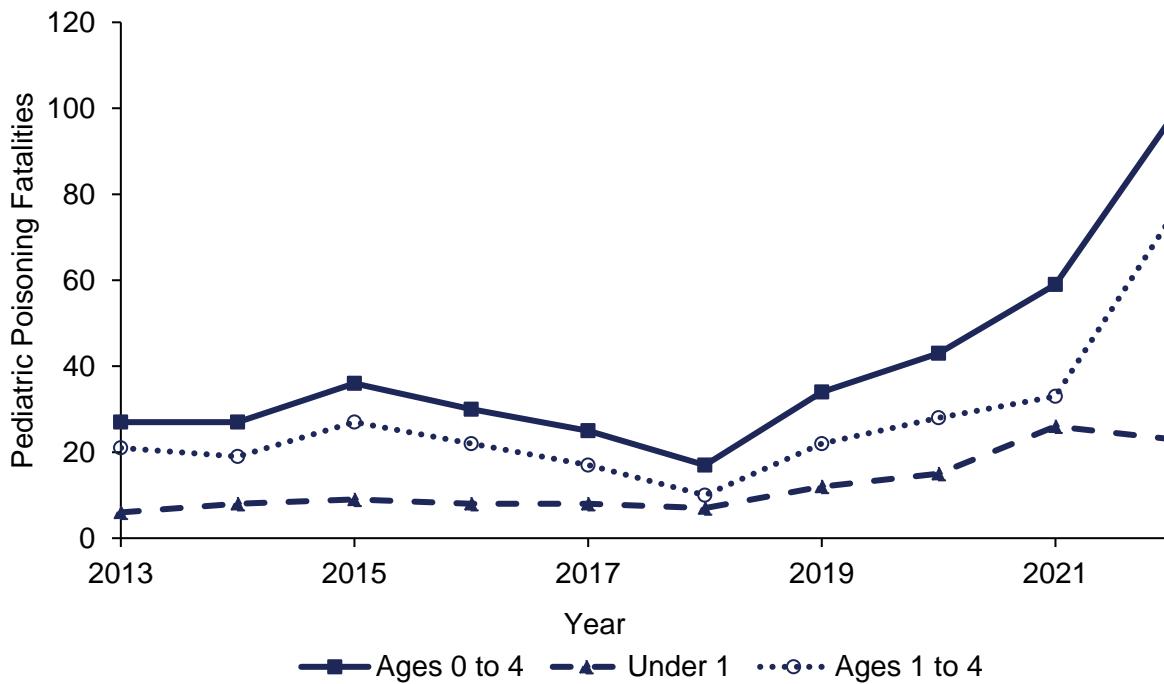
**Figure 1: Pediatric Poisoning Fatalities Among Children Under 5, 1972 – 2022**



Note: The vertical lines indicate when the World Health Organization switched from using ICD-8 to ICD-9 in 1979, and when it switched from using ICD-9 to ICD-10 in 1999. Data for 2022 are provisional and may be incomplete due to delays in reporting. Source: National Center for Health Statistics.

Poisoning death counts for children younger than age 5 were categorized into two age subcategories: children younger than 1 year of age, and children from 1 year through 4 years of age. The death counts for each age subcategory from 2013 through 2022, along with the total death counts for children under 5, are shown in Figure 2.

**Figure 2: Pediatric Poisoning Fatalities Among Children Under 5, 2013 – 2022 By Age Categories**



Data for 2022 are provisional and may be incomplete due to delays in reporting.  
 Source: National Center for Health Statistics.

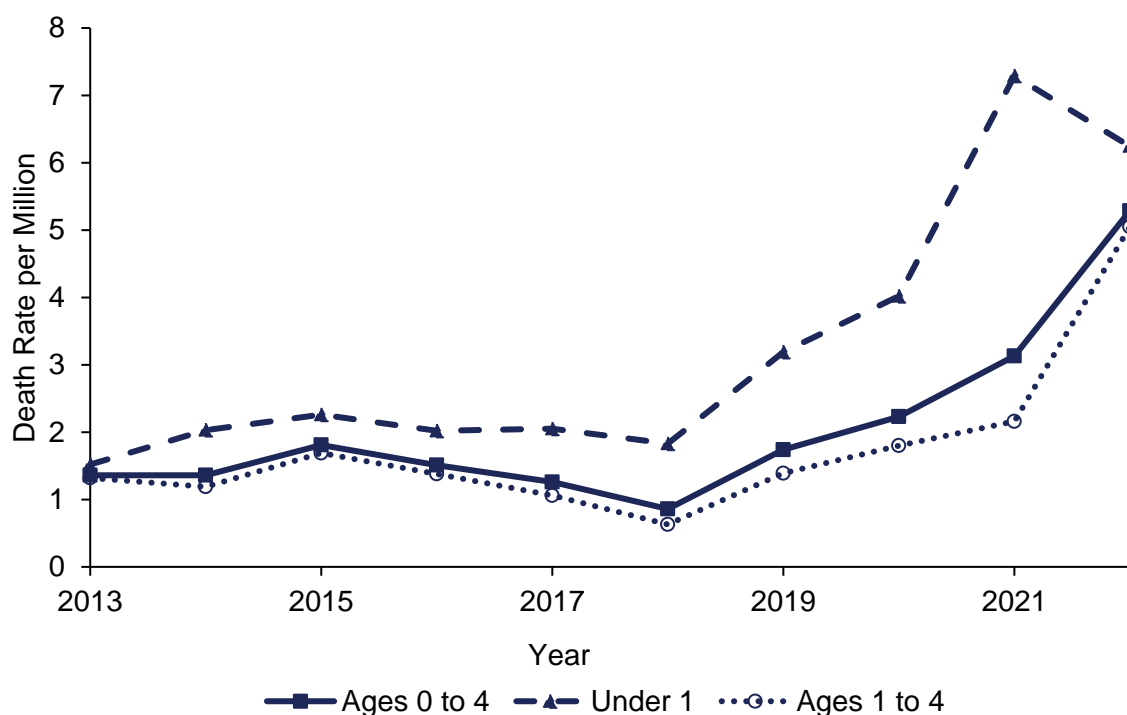
The death rates were calculated using population estimates from the U.S. Census Bureau. The death rates for each age subcategory from 2013 through 2022, along with the total death rates, are shown in Table 2 and Figure 3. It should be noted that the death rates may change slightly, depending on the release year of the population data used in the calculation.

**Table 2: Pediatric Poisoning Death Rates Among Children Under 5, 2013 – 2022 By Age Categories\***

| Year | Under 1 | Ages 1 to 4 | Ages 0 to 4 |
|------|---------|-------------|-------------|
| 2013 | 1.52    | 1.32        | 1.36        |
| 2014 | 2.03    | 1.19        | 1.36        |
| 2015 | 2.26    | 1.69        | 1.81        |
| 2016 | 2.02    | 1.38        | 1.51        |
| 2017 | 2.05    | 1.06        | 1.26        |
| 2018 | 1.83    | 0.63        | 0.86        |
| 2019 | 3.19    | 1.39        | 1.74        |
| 2020 | 4.02    | 1.80        | 2.23        |
| 2021 | 7.29    | 2.16        | 3.13        |
| 2022 | 6.24    | 5.05        | 5.29        |

\*Rates are per million population of the specified age group. Mortality data for 2022 are provisional and may be incomplete due to delays in reporting. Source: National Center for Health Statistics and U.S. Census Bureau.

**Figure 3: Pediatric Poisoning Death Rates Among Children Under 5, 2013 – 2022 By Age Categories\***



\*Rates are per million population of the specified age group. Mortality data for 2022 are provisional and may be incomplete due to delays in reporting. Source: National Center for Health Statistics and U.S. Census Bureau.



Overall, the total poisoning death counts and rates for children under age 5 increased from 2018 to 2022. Although the death rate for the under-1-year age category decreased in 2022, it remained higher than the rates for the 0-to-4 and 1-to-4 age categories throughout the years 2013 to 2022.

Yearly poisoning death counts of children under age 5 from 2020 to 2022, by ICD-10 codes, are shown in Table 3.

**Table 3: Pediatric Poisoning Death Counts Among Children Under 5, 2020 – 2022 by ICD-10 Code<sup>5</sup>**

| ICD-10 Code                                                       | 2020      | 2021      | 2022      |
|-------------------------------------------------------------------|-----------|-----------|-----------|
| X40 (non-opioid analgesics, antipyretics, and antirheumatics)     | 1         | 1         | ***       |
| X41 (antiepileptic, sedative- hypnotic, . . . and psychotropic)   | 8         | 9         | 16        |
| X42 (narcotics and psychodysleptics, not elsewhere classified)    | 21        | 33        | 59        |
| X43 (drugs acting on the autonomic nervous system)                | 0         | 0         | ***       |
| X44 (other and unspecified drugs . . . and biological substances) | 11        | 16        | 19        |
| X45 (alcohol)                                                     | 0         | 0         | 0         |
| X46 (organic solvents and halogenated hydrocarbons)               | 0         | 0         | 0         |
| X48 (pesticides)                                                  | 2         | 0         | ***       |
| X49 (other and unspecified chemicals and noxious substances)      | 0         | 0         | 0         |
| <b>Total</b>                                                      | <b>43</b> | <b>59</b> | <b>98</b> |

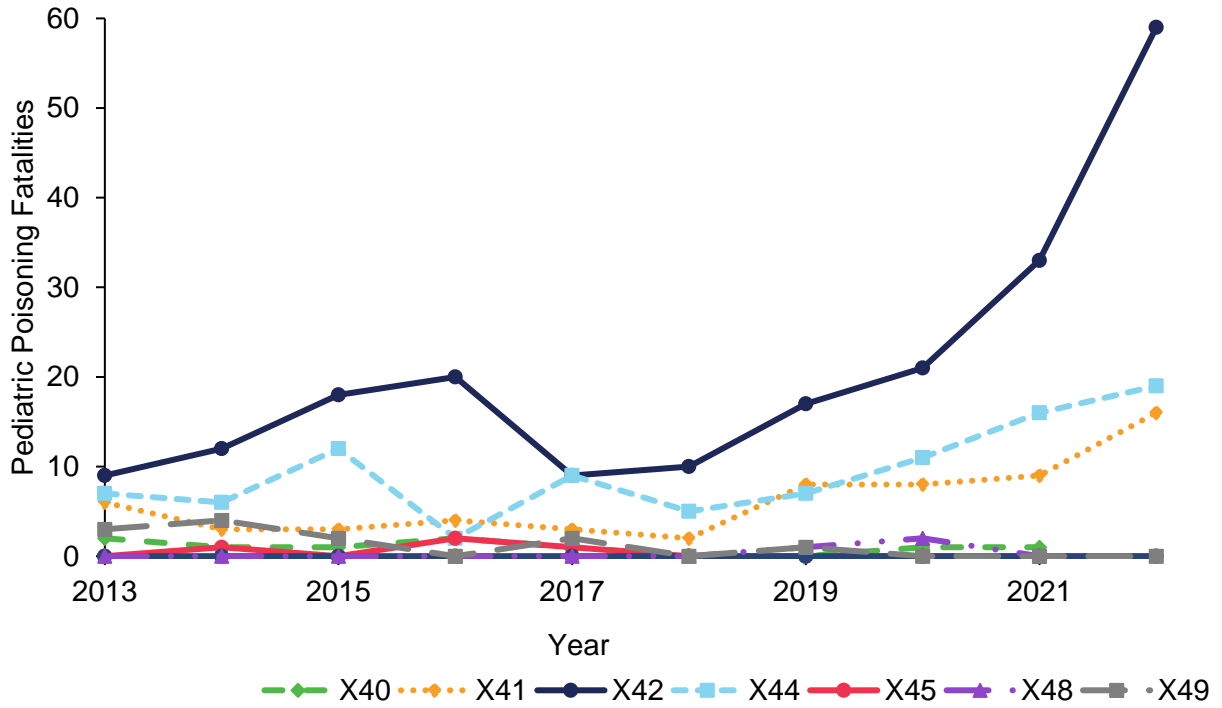
Data for 2022 are provisional and may be incomplete due to delays in reporting.

\*\*\*Provisional death counts of nine or fewer are not available due to data use restrictions.

Sources: 2022, National Center for Health Statistics; 2020-2021, [Bragg, S. "Annual Report on Pediatric Poisoning Fatalities and Injuries." CPSC. January 2023.](#)

<sup>5</sup> The code definitions were abbreviated due to space considerations. Please see the full list of codes and definitions on page 14 and 15.

**Figure 4: Pediatric Poisoning Death Counts Among Children Under 5, 2013 – 2022 by ICD-10 Code**



Data for 2022 are provisional and may be incomplete due to delays in reporting. Provisional death counts of nine or fewer are not available due to data use restrictions. ICD-10 codes X43 and X46 are not included in the figure, as either no deaths were reported or only provisional data were available during the period presented. Sources: 2022; 2013-2019, National Center for Health Statistics; 2020-2021, [Bragg, S. "Annual Report on Pediatric Poisoning Fatalities and Injuries," CPSC, January 2023.](#)

## Estimated Injury Data

In 2022, staff found 2,387 cases involving unintentional pediatric poisonings for children younger than age 5 in the NEISS.<sup>6</sup> Based on these cases, staff computed a national estimate of 68,600 ED-treated injuries, with a coefficient of variation (CV) of 15.82 percent. The 95 percent confidence interval (CI) for this estimate was 47,400 to 89,900. A breakdown of the estimated injuries by diagnosis is shown in Table 4.

**Table 4: 2022 ED-Treated Unintentional Pediatric Poisoning Estimates by Diagnosis\***

| Diagnosis (Code)   | Estimate | Cases | CV     | 95% CI          |
|--------------------|----------|-------|--------|-----------------|
| Poisoning (68)     | 64,900   | 2,269 | 14.86% | 46,000 – 83,800 |
| Chemical Burn (49) | N/A**    | 121   | 39.47% | N/A**           |
| Total <sup>7</sup> | 68,600   | 2,387 | 15.82% | 47,400 – 89,900 |

Source: National Electronic Injury Surveillance System

\*Adjusted to exclude adverse reactions, therapeutic errors, and exposures beyond the victim's control.<sup>8</sup>

\*\*Estimates are unstable as CV is above the threshold of 33%.

From 2020 to 2022, there was an estimated annual average of 64,300 ED-treated injuries involving unintentional pediatric poisonings for children younger than age 5. The estimated injuries increased from 2020 to 2022, but the trend was not statistically significant (the lowest p-value for all year-to-year changes, for the entire time frame, was 0.07, with an overall long-term trend p-value of 0.36). Table 5 gives a breakdown of the estimated injuries by year and diagnosis code.

**Table 5: 2020 – 2022 ED-Treated Unintentional Pediatric Poisoning Estimates by Year\***

| Diagnosis (Code)   | 2020   | 2021   | 2022   | Average |
|--------------------|--------|--------|--------|---------|
| Poisoning (68)     | 58,200 | 58,400 | 64,900 | 60,500  |
| Chemical Burn (49) | N/A**  | N/A**  | N/A**  | N/A**   |
| Total              | 61,500 | 62,600 | 68,600 | 64,300  |

Source: National Electronic Injury Surveillance System

\*Adjusted to exclude adverse reactions, therapeutic errors, and exposures beyond the victim's control.<sup>8</sup>

\*\*Estimates are unstable as CV is above the threshold of 33%.

An estimated 47,400 (69 percent of the total 68,600) poisonings occurred at home. An estimated 19,700 (29 percent) poisonings occurred at an unknown location. The remaining injuries occurred at other locations, such as streets, schools, playgrounds, and other public property.

<sup>6</sup> In October 2018, NEISS was upgraded so that an ED visit can contain up to two codes for the diagnoses. Data were extracted if either of the two codes listed poisoning or chemical burn. Note that it is possible for some incidents to have both poisoning and chemical burn diagnoses.

<sup>7</sup> Columns may not sum to totals due to rounding and the diagnosis categories not being mutually exclusive.

<sup>8</sup> See examples of the out-of-scope cases in the Methodology section on page 17.

Table 6 presents a breakdown, by the product involved, for the estimated ED-treated unintentional pediatric poisonings. Note that the product categories are not mutually exclusive because it is possible for two different products to be associated with the same poisoning incident.

**Table 6: 2022 ED-Treated Unintentional Pediatric Poisoning Estimates by Top 10 Products<sup>9\*</sup>**

| Product                    | Estimate <sup>10</sup> | CV     | 95% CI        |
|----------------------------|------------------------|--------|---------------|
| Acetaminophen              | 5,700                  | 14.09% | 4,100 – 7,300 |
| Blood Pressure Medications | 5,000                  | 16.81% | 3,300 – 6,600 |
| Dietary Supplements        | 4,000                  | 24.85% | 2,100 – 6,000 |
| Ibuprofen                  | 3,600                  | 21.16% | 2,100 – 5,000 |
| Laundry Packets            | 2,900                  | 20.63% | 1,700 – 4,100 |
| Antidepressants            | 2,800                  | 19.37% | 1,700 – 3,800 |
| Bleach                     | 2,700                  | 28.20% | 1,200 – 4,200 |
| Illegal drugs              | 2,600                  | 20.64% | 1,500 – 3,600 |
| Narcotic Medications**     | 2,500                  | 21.71% | 1,400 – 3,500 |
| Unknown                    | 2,000                  | 26.94% | 900 – 3,000   |

Source: National Electronic Injury Surveillance System

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

\*\*Narcotic medications injuries made the list of top 10 products for the first time since 2018.

<sup>9</sup> Liquid nicotine poisoning injuries did not appear in the top 10 products in 2022, or any prior years. The CNPPA requires any nicotine provided in a liquid nicotine container, sold, offered for sale, manufactured for sale, distributed in commerce, or imported into the United States shall be packaged in accordance with the standards of the PPPA.

<sup>10</sup> Please refer to the appendix on page 21 for estimates for the previous year.

Table 7 and Table 8 provide breakdowns by gender and ethnicity/race, respectively, for the estimated ED-treated unintentional pediatric poisonings for the injured and U.S. population under the age of 5. The population data are from the U.S. Census Bureau.

**Table 7: 2022 ED-Treated Unintentional Pediatric Poisoning Estimates by Victims' Gender**

| Gender | Estimated Total Number of ED-Treated Injuries | Percent of Estimated ED-Treated Injuries | Percent of U.S. Population |
|--------|-----------------------------------------------|------------------------------------------|----------------------------|
| Male   | 37,800                                        | 55                                       | 51                         |
| Female | 30,800                                        | 45                                       | 49                         |

Source: National Electronic Injury Surveillance System and U.S. Census Bureau.

**Table 8: 2022 ED-Treated Unintentional Pediatric Poisoning Estimates by Victims' Ethnicity and Race\***

| Ethnicity                  | Race                             | Injured Population (%) | U.S. Population (%) |
|----------------------------|----------------------------------|------------------------|---------------------|
| <b>Hispanic Origin</b>     |                                  | <b>13.7</b>            | <b>26.5</b>         |
|                            | White                            | 8.6                    | 21.6                |
|                            | Black/African American           | 0.6                    | 1.9                 |
|                            | Asian                            | 0.1                    | 0.4                 |
|                            | American Indian/Alaska Native    | 0.2                    | 1.1                 |
|                            | Native Hawaiian/Pacific Islander | -                      | 0.1                 |
|                            | Other <sup>11</sup>              | 4.2                    | 1.3                 |
| <b>Non-Hispanic Origin</b> |                                  | <b>86.3</b>            | <b>73.5</b>         |
|                            | White                            | 63.3                   | 47.3                |
|                            | Black/African American           | 18.3                   | 14.3                |
|                            | Asian                            | 0.9                    | 5.7                 |
|                            | American Indian/Alaska Native    | 1.0                    | 0.7                 |
|                            | Native Hawaiian/Pacific Islander | <0.1                   | 0.2                 |
|                            | Other <sup>11</sup>              | 2.9                    | 5.2                 |
| <b>All</b>                 |                                  | <b>100</b>             | <b>100</b>          |
|                            | White                            | 71.9                   | 68.9                |
|                            | Black/African American           | 18.8                   | 16.3                |
|                            | Asian                            | 1.0                    | 6.1                 |
|                            | American Indian/Alaska Native    | 1.2                    | 1.8                 |
|                            | Native Hawaiian/Pacific Islander | <0.1                   | 0.4                 |
|                            | Other <sup>11</sup>              | 7.1                    | 6.6                 |

Source: National Electronic Injury Surveillance System and U.S. Census Bureau.

\*Excludes any incidents where either Race was "Not Stated" or Ethnicity was "Not Stated", which composed 42 percent of the estimated injuries.

<sup>11</sup> This category includes two or more races.

# Appendix A

## Methodology

### Fatalities Data

The data for 1972 through 1996 are from a previous report prepared by CPSC’s Directorate for Health Sciences staff.<sup>12</sup> Counts of deaths for 1997 through 2002 were obtained from the NCHS website, using data in the under-1-year age group and the 1- to 4-year age group. Counts of deaths for 2003 through 2006 for children under the age of 5 years were determined from data obtained in CD-ROMs from NCHS. Counts of deaths for 2007 through 2022 for children under the age of 5 years were determined from data downloaded from the NCHS website. Population data were obtained from the U.S. Census Bureau website.

The download of the NCHS data for 2022 was from:

- U.S. Department of Health and Human Services. National Center for Health Statistics. Provisional Multiple Cause of Death, on CDC WONDER Online Database.

The download of the population data for 2022 was from:

- Annual Estimates of the Resident Population by Sex, Age, Race, and Hispanic Origin for the United States: April 1, 2020 to July 1, 2022 (NC-EST2022-ASR6H). Release Date: June 2023: <https://www2.census.gov/programs-surveys/popest/tables/2020-2022/national/asrh/nc-est2022-asr6h.xlsx>

CPSC subset the mortality data by the ICD-10 cause of death code and age grouping.

Staff used ICD-10 codes X40 through X49, excluding X47 because it covers carbon monoxide poisonings not relevant to the PPPA. We included incidents in the subset only if a relevant ICD-10 code was listed as the underlying cause of death.

Fatalities from 1994 through 1998 were coded in 17 E-codes (850 through 866) from the ninth revision of the International Classification of Diseases (ICD-9). Fatalities for 1999 through 2022 are identified under the nine codes from X40 through X49, excluding X47, from the tenth revision of the International Classification of Diseases (ICD-10). These codes are:

X40 Accidental poisoning by and exposure to nonopioid analgesics, antipyretics, and antirheumatics.

X41 Accidental poisoning by and exposure to antiepileptic, sedative-hypnotic,

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<sup>12</sup> Memorandum from Susan Aitken, Ph.D., to Kenneth P. Giles, dated 29 Jan 1999: “National Center for Health Statistics (NCHS) Data on Pediatric Fatalities for 1996.” U.S. Consumer Product Safety Commission, Washington, D.C.

antiparkinsonism, and psychotropic drugs, not elsewhere classified.

- X42 Accidental poisoning by and exposure to narcotics and psychodysleptics (hallucinogens), not elsewhere classified.
- X43 Accidental poisoning by and exposure to other drugs acting on the autonomic nervous system.
- X44 Accidental poisoning by and exposure to other and unspecified drugs, medicaments, and biological substances.
- X45 Accidental poisoning by and exposure to alcohol.
- X46 Accidental poisoning by and exposure to organic solvents and halogenated hydrocarbons and their vapors.
- X48 Accidental poisoning by and exposure to pesticides.
- X49 Accidental poisoning by and exposure to other and unspecified chemicals and noxious substances.

The excluded code, X47, is for accidental poisoning by and exposure to other gases and vapors, a code that includes carbon monoxide poisoning.

The United States began using ICD-10 codes for deaths occurring in 1999, replacing ICD-9, which had been adopted in 1979. The revision of ICD-9 into ICD-10 involved increasing the number of categories from about 5,000 to about 8,000, changing from numeric to alphanumeric codes, and changing some rules for selecting the underlying cause of death.<sup>13</sup> Because ICD-10 codes are not directly comparable to ICD-9 codes, discontinuities can appear in trend analyses that use data on deaths occurring before 1999. Year-to-year variability is also evident in the data.

Comparability ratios can be used to adjust past NCHS counts to reflect how many deaths would have been coded in certain groupings had ICD-10 been in effect during a given year. However, NCHS has not released a comparability ratio for poisonings as of this writing. NCHS released preliminary estimates of comparability ratios for the transition from ICD-9 to ICD-10 in May 2001. The estimates were based on a sample of double-coded death certificates from 1996.<sup>14</sup> For most cause-of-death groupings, the NCHS researchers provided ratios. For the poisoning group, however, the preliminary ratio estimate was deemed unreliable. This may have been for

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<sup>13</sup> Anderson, RN, Minino, AM, Hoyert, DL, Rosenberg, HM. Comparability of Cause of Death Between ICD-9 and ICD-10: Preliminary Estimates. National Vital Statistics Report; vol 49 no 2. Hyattsville, Maryland: National Center for Health Statistics. 2001.  
<sup>14</sup> Memorandum from Susan Aitken, Ph.D. to Kenneth P. Giles dated 29 Jan 1999: "National Center for Health Statistics (NCHS) Data on Pediatric Fatalities for 1996." CPSC, Washington, D.C.

several possible reasons, including a paucity of deaths in the poisoning codes; a lack of inclusion of deaths from the poisoning grouping in the preliminary study; or an increase or decrease in deaths due to poisoning, which was determined by the researchers to be both large-scale and erroneous.

In the absence of a ratio for poisoning, the ratio for nontransport accidents was considered for use by CPSC staff in this analysis. Nontransport accidents include all accidental deaths that do not involve a vehicle. Because of the possibility that the comparability ratio for the poisoning group could differ significantly from that for all nontransport accidents for any one of the reasons above, CPSC staff ultimately chose to postpone the use of an NCHS comparability ratio. Comparisons between pre-1999 and post-1999 data should be made with caution.

The ICD-10 categories included in this report were chosen to present comprehensive statistics on childhood poisonings, with a particular interest in including any death that may have been prevented using child-resistant packaging. Some of the deaths included may involve situations or products that fall outside of the CPSC's jurisdiction. For example, the category X44 may include deaths due to food poisoning (e.g., salmonella, botulism toxin) or due to exposure to wild mushrooms; and category X42 may include deaths due to exposure to illegal drugs.

The true number of deaths due to household products or the drug packaging within the CPSC's jurisdiction is likely close to, but not greater than, the number presented in this report for any given year. In the absence of a detailed analysis of the full complement of death certificates in the given categories, it is not possible to determine what percentage of the deaths included in these codes may have been preventable using child-resistant packaging. This would require a further, detailed analysis.



## Estimated Injury Data

NEISS is a probability sample of approximately 100 U.S. hospitals, each operating 24-hour EDs and providing more than six beds. Staff in each hospital input and code 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 several 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 ED visits (Kessler and Schroeder, 1999).

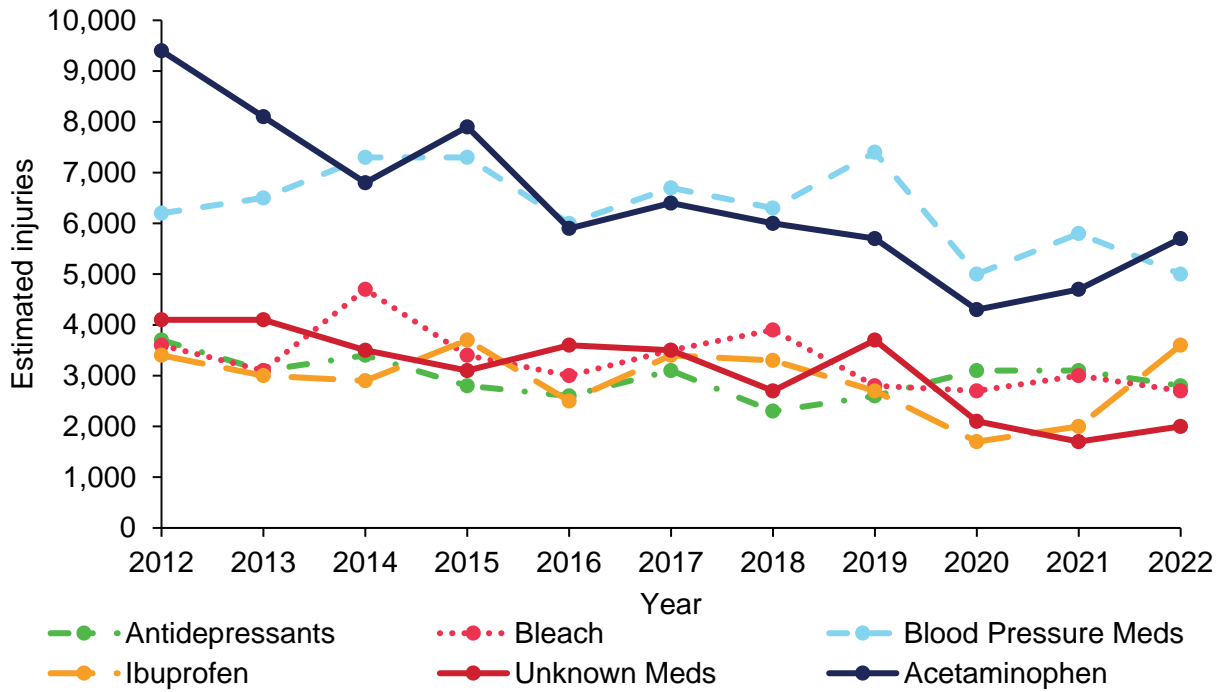
Hazard Analysis staff searched NEISS databases for all incidents with a poisoning diagnosis (code 68) or chemical burn diagnosis (code 49) involving children under the age of 5. Health Sciences staff examined all incidents to identify cases that were not unintentional exposures but were deemed generally associated with a prescribed therapeutic regimen, or an unforeseen incidental exposure from a situation beyond 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® software program (SAS Studio® v3.81) to manage and retrieve data and to compute estimates and the associated CV for the number of unintentional pediatric poisoning injuries. A CV 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 CV of 10 percent means the standard error of the estimate equals 0.1 times the estimate.

NEISS data do 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.

**Figure A.1: Estimated ED-Treated Injuries for Products in the Top 10 Every Year from 2012 – 2022\***

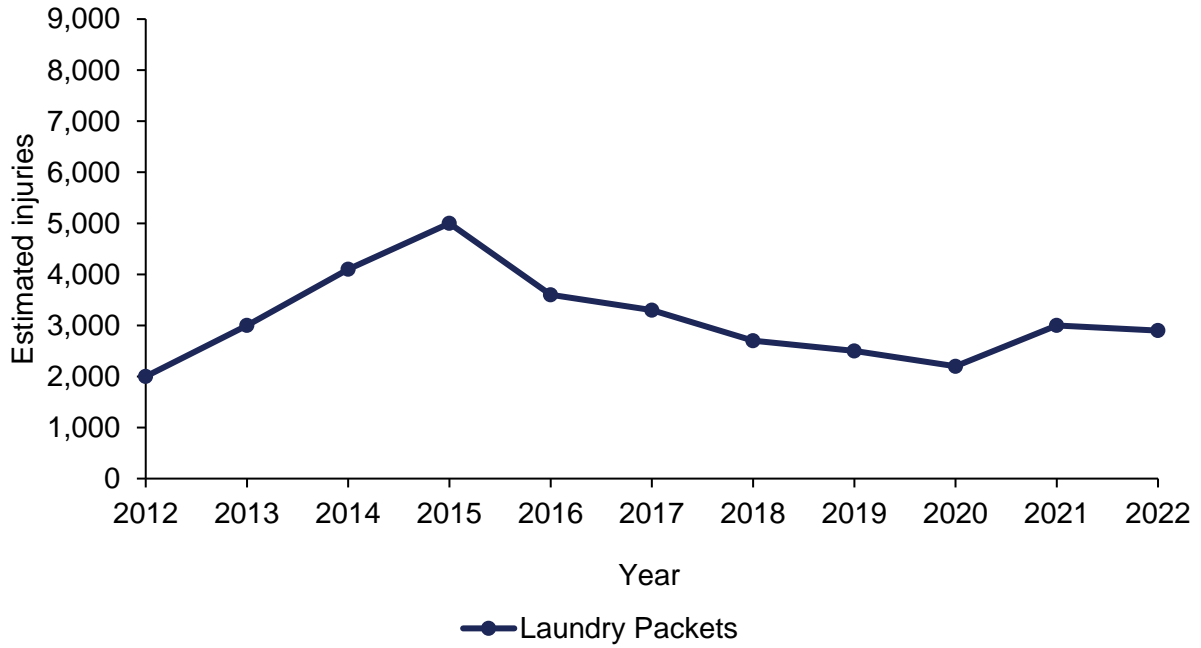


\*Due to limited variance in the population of children under 5, the pattern remains the same when normalized per 100,000 children.

\*There has been an overall reduction in Acetaminophen since 2012, which may be due to several Acetaminophen child safety cap recalls.

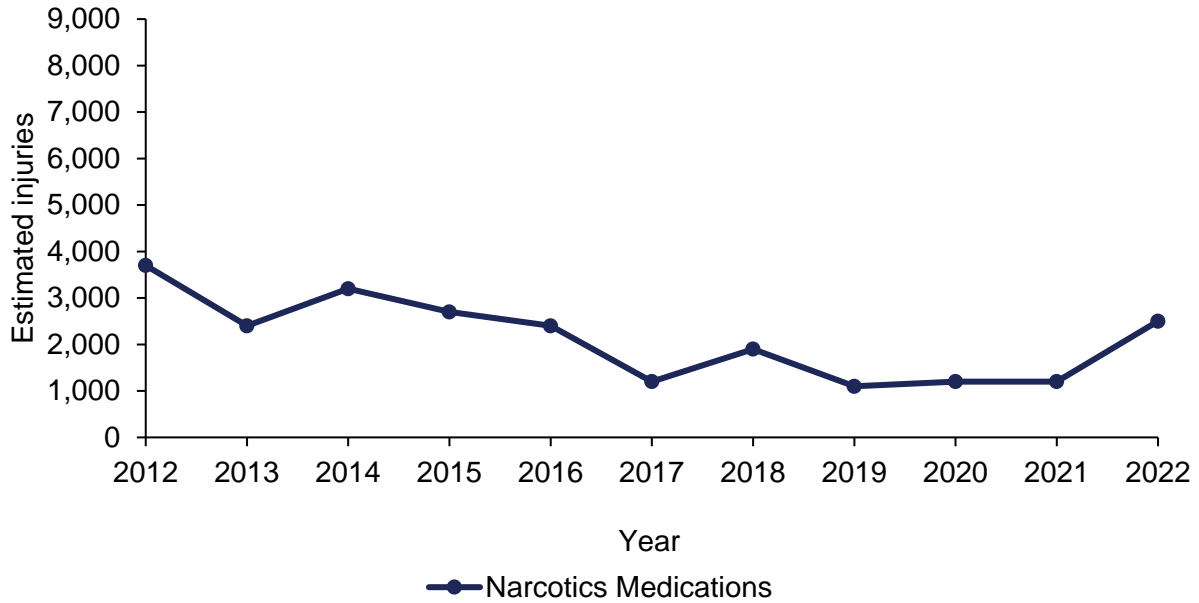
Source: National Electronic Injury Surveillance System.

**Figure A.2: Estimated ED-Treated Injuries for Laundry Packets from 2012 – 2022\***



\*Laundry Packets were introduced in 2012 and have been in the top 10 products every year since 2013.  
Source: National Electronic Injury Surveillance System.

**Figure A.3: Estimated ED-Treated Injuries for Narcotics Medications from 2012 – 2022\***



\*Both Narcotics medications deaths and injuries increased from 2021 to 2022. Narcotics medications deaths increased 79% from 2021 to 2022. Narcotics medications injuries made the list of top 10 products for 2022, the first time since 2018.

Source: National Electronic Injury Surveillance System.

Estimated ED-treated injuries for the top 10 products for each year from 2012 through 2019 are provided in <https://www.cpsc.gov/content/Unintentional-Pediatric-Poisoning-Injury-Estimates-for-2019>, pp 3, 7-9. Data for the year 2020 are provided in <https://www.cpsc.gov/content/Annual-Report-on-Pediatric-Poisoning-Fatalities-and-Injuries>, pp 11.

Shown below is the tabulation for the 2021 top 10 products involved in unintentional pediatric poisoning injuries.

**Table A.1: 2021 ED-Treated Unintentional Pediatric Poisoning Estimates by Top 10 Products\***

| Product                                | Estimate | CV     | 95% CI        |
|----------------------------------------|----------|--------|---------------|
| Blood Pressure Medications             | 5,800    | 20.29% | 3,500 – 8,100 |
| Acetaminophen                          | 4,700    | 20.31% | 2,800 – 6,500 |
| Antidepressants                        | 3,100    | 21.77% | 1,800 – 4,400 |
| Laundry Packets                        | 3,000    | 21.89% | 1,700 – 4,200 |
| Bleach                                 | 3,000    | 22.16% | 1,700 – 4,200 |
| Dietary Supplements                    | 2,500    | 23.21% | 1,400 – 3,700 |
| Ibuprofen                              | 2,000    | 19.64% | 1,300 – 2,800 |
| Illegal drugs                          | 2,000    | 27.88% | 900 – 3,100   |
| Attention Deficit Disorder Medications | 2,000    | 23.75% | 1,100 – 2,900 |
| Unknown                                | 1,700    | 16.31% | 1,200 – 2,200 |

Source: National Electronic Injury Surveillance System.

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