

The DAWN Report

September 14, 2010

Emergency Department Visits Involving Accidental Ingestion of Drugs by Children Aged 5 or Younger

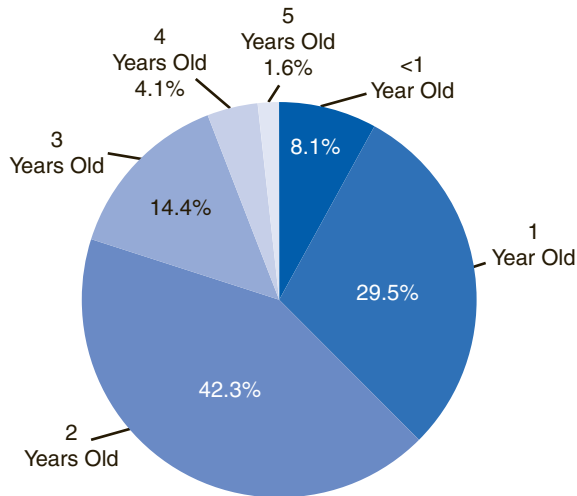
In Brief

- In 2008, there were an estimated 100,340 emergency department (ED) visits involving accidental ingestion of drugs, primarily pharmaceuticals; of these, 69,121 (68.9 percent) were made by patients aged 5 or younger
- Two fifths (42.3 percent) of the ED visits involving accidental drug ingestion among children aged 5 or younger were made by patients aged 2 years old, and 29.5 percent were made by patients aged 1 year old
- Drugs that act on the central nervous system (CNS drugs), such as acetaminophen products, ibuprofen products, and benzodiazepines, were involved in 40.8 percent of the ED visits involving accidental ingestion of drugs among patients aged 5 or younger, with the largest percentages coming from pain relievers (21.1 percent) and drugs used to treat anxiety and insomnia (11.6 percent)
- For children aged 5 or younger taken to the ED for accidental ingestion of drugs, 85.3 percent were treated and released, whereas 8.7 percent were admitted for inpatient care

As soon as infants learn to crawl and especially once they learn to walk, their mobility, curiosity, and tendency to put things in their mouths make many substances in the home a potential danger.¹ While caretakers may be alert to securing obviously dangerous substances such as cleaning products and chemicals, they may be less aware of the danger of leaving pharmaceutical products belonging to parents or other family members in accessible places. This can pose a serious threat of accidental ingestion by infants and toddlers.^{2,3}

The Drug Abuse Warning Network (DAWN) is a public health surveillance system that monitors drug-related emergency department (ED) visits in the United States. Data are collected from a nationally representative sample of short-term, general, non-Federal hospitals across the Nation. Specialty hospitals, including children's hospitals, are not included in the DAWN sample. To be a DAWN case, the ED visit must have involved a drug, either as the direct cause of the visit or as a contributing factor. DAWN includes drug-related ED visits involving the

Figure 1. Emergency Department (ED) Visits for Accidental Drug Ingestion among Children Aged 5 or Younger, by Age: 2008



Source: 2008 (08/2009 update) SAMHSA Drug Abuse Warning Network (DAWN).

accidental ingestion of pharmaceuticals and other types of medications (hereafter referred to as “drugs”). This issue of *The DAWN Report* focuses on ED visits involving accidental drug ingestion among children aged 5 or younger.

Overview

In 2008, there were an estimated 100,340 ED visits involving accidental ingestion of drugs, primarily pharmaceuticals. Of these, 69,121 (68.9 percent) were made by patients aged 5 or younger.⁴ Two fifths (42.3 percent) of these ED visits were made by patients aged 2 years old, and 29.5 percent were made by patients aged 1 year old (Figure 1). Males accounted for slightly more than half (55.7 percent) of these ED visits.

Drugs Involved in ED Visits

Pharmaceuticals were involved in 99.0 percent of the ED visits involving accidental ingestion of drugs among patients aged 5 or younger; alcohol or illicit drugs were involved in 1.0 percent of visits. Drugs that act on the central nervous system (CNS drugs), such as acetaminophen products, ibuprofen products, and benzodiazepines, were involved in 40.8 percent of the ED visits involving accidental ingestion of drugs among patients aged 5 or younger, with the largest percentages coming from pain relievers (21.1 percent) and drugs used to treat anxiety and insomnia (11.6 percent) (Table 1).

Table 1. Selected Drugs Involved in Emergency Department (ED) Visits for Accidental Ingestion among Children Aged 5 or Younger: 2008

Drug Category	Estimated Number of ED Visits	Percentage of Visits*
Total ED Visits	69,121	100.0
Central Nervous System Drugs	28,186	40.8
Pain Relievers	14,572	21.1
Acetaminophen Products	7,008	10.1
Ibuprofen Products	4,581	6.6
Narcotic Pain Relievers	2,679	3.9
Drugs for Anxiety or Insomnia	8,035	11.6
Benzodiazepines	5,325	7.7
Central Nervous System Stimulant Medications	1,859	2.7
Cardiovascular System Medications	10,883	15.7
Respiratory System Medications	7,111	10.3
Psychotherapeutic Drugs	5,969	8.6
Antidepressants	4,286	6.2
Antipsychotics	2,034	2.9
Topical Medications	5,964	8.6
Drugs for Metabolic Disorders	3,444	5.0

* Because multiple drugs may be involved in each visit, estimates of visits by drug may add to more than the total, and percentages may add to more than 100 percent.

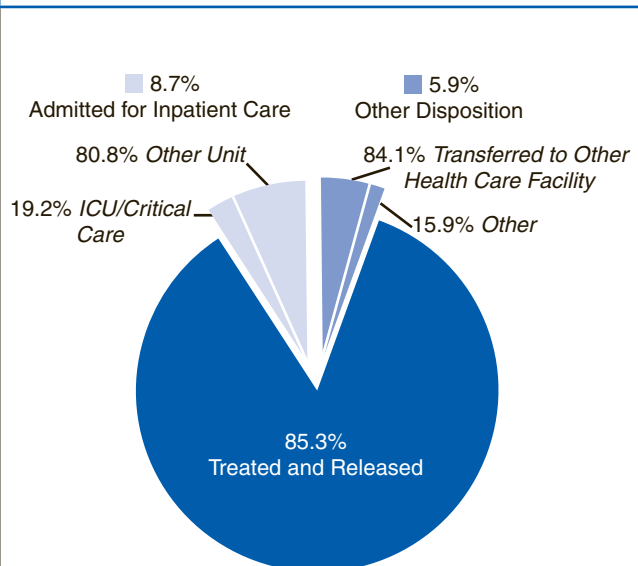
Source: 2008 (08/2009 update) SAMHSA Drug Abuse Warning Network (DAWN).

Nearly 1 in 6 visits (15.7 percent) involved cardiovascular system medications, and 1 in 10 visits (10.3 percent) involved respiratory system medications. Psychotherapeutic drugs (i.e., antidepressants and antipsychotics) and topical medications each accounted for 8.6 percent of visits, and drugs for metabolic disorders were involved in 5.0 percent of the visits.

Discharge from the ED

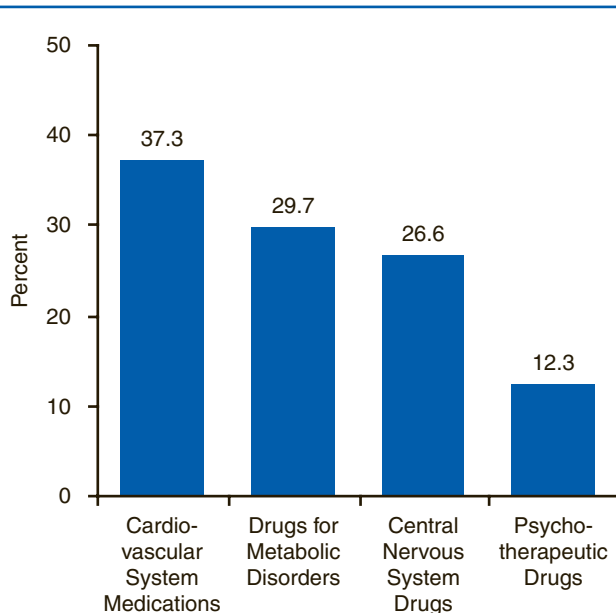
For children aged 5 or younger taken to the ED for accidental ingestion of drugs, 85.3 percent were treated and released, whereas 8.7 percent were admitted for inpatient care (Figure 2). Of these, approximately 20 percent were admitted into the intensive or critical care unit. For the patients that were admitted, nearly two fifths (37.3 percent) of the visits involved cardiovascular system medications, while 29.7 percent involved

Figure 2. Disposition of Emergency Department (ED) Visits for Accidental Ingestion among Children Aged 5 or Younger: 2008



Source: 2008 (08/2009 update) SAMHSA Drug Abuse Warning Network (DAWN).

Figure 3. Selected Drugs Involved in Emergency Department (ED) Visits for Accidental Ingestion among Children Aged 5 or Younger That Resulted in Inpatient Care: 2008*



* Because multiple drugs may be involved in each visit, percentages may add to more than 100 percent.

Source: 2008 (08/2009 update) SAMHSA Drug Abuse Warning Network (DAWN).

drugs for metabolic disorders, 26.6 percent involved CNS drugs, and 12.3 percent involved psychotherapeutic drugs (Figure 3). Of the patients who were not treated and released or admitted to the hospital (5.9 percent), most (84.1 percent) were transferred to another health care facility.

Discussion

Accidental ingestion of drugs by young children is a public health problem affecting thousands of children and families each year. Not only did the number of ED visits from accidental drug ingestion exceed 100,000 in 2008, but almost 7 in 10 (68.9 percent) of the ED visits were for children aged 5 or younger. Further, these ED visits involved a wide variety of drugs, indicating the ability of young children to access and ingest these medications. These findings show a critical need for increased education and awareness among caregivers about the danger of accidental ingestion of drugs, the importance of storing drugs in secure locations, and methods for appropriate disposal of leftover or expired drugs. Education and awareness campaigns should target temporary caregivers (e.g., babysitters) and visitors to the home (e.g., grandparents) as well as immediate family members.

End Notes

- Ma, D. (2009). Keep curious kids safe by poison proofing your home. *AAP News*, 30(2). DOI: 10.1542/aapnews.20093011-2c. [Available at <http://aapnews.aapublications.org/cgi/reprint/30/11/2-c>]
- Centers for Disease Control and Prevention. (2006). Nonfatal, unintentional medication exposures among children—United States, 2001-2003. *Morbidity and Mortality Weekly Report*, 55(1), 1-5. [Available at <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5501a1.htm>]
- Chien, C., Marriott, J., Ashby, K., & Ozanne-Smith, J. (2003). Unintentional ingestion of over the counter medications in children less than 5 years old. *Journal of Paediatric Child Health*, 39, 264-269.
- Any ED visit for which age was unknown was excluded from the analyses in this report.

Suggested Citation

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Findings from SAMHSA's 2008 (08/2009 update) Drug Abuse Warning Network (DAWN)

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The Drug Abuse Warning Network (DAWN) is a public health surveillance system that monitors drug-related morbidity and mortality. DAWN uses a probability sample of hospitals to produce estimates of drug-related emergency department (ED) visits for the United States and selected metropolitan areas annually. DAWN also produces annual profiles of drug-related deaths reviewed by medical examiners or coroners in selected metropolitan areas and States.

Any ED visit related to recent drug use is included in DAWN. All types of drugs—licit and illicit—are covered. Alcohol is included for adults when it occurs with another drug. Alcohol always is reported for minors even if no other drug is present. DAWN's method of classifying drugs was derived from the Multum *Lexicon*, Copyright 2008, Multum Information Services, Inc. The Multum Licensing Agreement can be found in DAWN annual publications and at <http://www.multum.com/license.htm>.

DAWN is one of three major surveys conducted by the Substance Abuse and Mental Health Services Administration's Office of Applied Studies (SAMHSA/OAS). For more information on other OAS surveys, go to <http://oas.samhsa.gov>. SAMHSA has contracts with Westat (Rockville, MD) and RTI International (Research Triangle Park, NC) to operate the DAWN system and produce publications.

For publications and additional information about DAWN, go to <http://DAWNinfo.samhsa.gov/>.



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