New
The DAWN Report
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DRUG ABUSE WARNING NETWORK

Emergency Department Visits Involving Nonmedical Use of Selected Pharmaceuticals

In Brief

According to the Drug Abuse Warning Network (DAWN) for 2004:

- Nearly 1.3 million emergency department (ED) visits in 2004 were associated with drug misuse/abuse. Nonmedical use of pharmaceuticals was involved in nearly a half million of these ED visits.
- Opiates/opioid analgesics (pain killers), such as hydrocodone, oxycodone, and methadone, and benzodiazepines, such as alprazolam and clonazepam, were each present in more than 100,000 ED visits associated with nonmedical use of pharmaceuticals in 2004.
- Muscle relaxants, particularly carisoprodol and cyclobenzaprine, were involved in an estimated 28,000 ED visits related to nonmedical use.
- Two thirds or more of ED visits associated with opiates/opioids, benzodiazepines, and muscle relaxants involved multiple drugs, and alcohol was one of the other drugs in about a quarter of such visits.

Public concern has been increasing about the nonmedical use of pharmaceuticals.[1-3] The problem involves both medications available only by prescription and other pharmaceuticals, such as dietary supplements, which are commonly available over the counter.[4] Medications with a high potential for abuse are being more widely employed in the treatment of chronic medical conditions.[5-8] Some evidence also shows that increased long-term exposure may be associated with a higher likelihood of abuse.[9] Recent epidemiological data have shown dramatic increases in nonmedical use of pharmaceuticals among youth (12 to 17) and older adults (i.e., 55+).[10]

The Drug Abuse Warning Network (DAWN), which collects data from a national sample of short-term, general, non-Federal hospitals,[11] offers valuable information on the scope of this problem and the burden it creates on one segment of the health care system. Data on drug-related emergency department (ED) visits provide both an indication of the physical harm that may result from drug misuse and abuse as well as information about the characteristics of patients involved. An ED visit associated with drug misuse or abuse also represents a unique opportunity for health care providers to identify and refer patients for appropriate follow-up care, including substance abuse treatment. DAWN data on the disposition of these visits provide some evidence of how frequently such interventions occur as a result of care sought in

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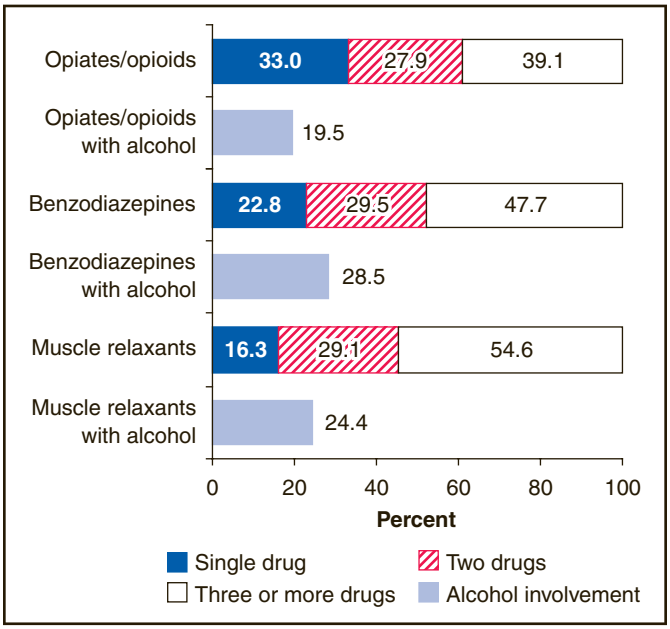
EDs and the relative frequency of visits that do not receive such follow-up care.

This DAWN report examines drug-related ED visits associated with nonmedical use involving three pharmaceuticals that are often used nonmedically: opiates/opioid analgesics (pain relievers), benzodiazepines, and muscle relaxants. Nonmedical use includes taking a higher-than-prescribed or recommended dose of a pharmaceutical, taking a pharmaceutical prescribed for another individual, malicious poisoning of the patient by another individual, as well as substance abuse involving pharmaceuticals.

Figure 1. Nonmedical use of pharmaceuticals alone and in combination



Source: a) U.S. Census Bureau; b) Office of Applied Studies, SAMHSA, Drug Abuse Warning Network, 2004 (September 2005 update).

Overview

According to DAWN data, there were nearly a half million ED visits involving nonmedical use of pharmaceuticals in 2004 (Table 1). Of these visits, 31.9 percent involved opiates/opioids, 29.1 percent involved benzodiazepines, and 5.7 percent involved muscle relaxants.

An estimated 158,281 ED visits involved opiates/opioids. The most frequently listed opiates/opioids were hydrocodone products (26.8% of opiates/opioids), oxycodone products (23.1%), and methadone (20.1%). An estimated 144,385 ED visits involved benzodiazepines. Alprazolam and clonazepam, respectively, accounted for 34.5 and 18.1 percent of such visits. Carisoprodol was the most frequently named muscle relaxant (61.2% of the visits involving muscle relaxants).

Polydrug use

Typically, ED visits for nonmedical use of pharmaceuticals involve multiple drugs. Multiple drugs were involved in 67.0 percent of visits for opiates/opioids, 77.2 percent of visits for benzodiazepines, and 83.7 percent of ED visits for muscle relaxants (Figure 1). Often, alcohol is one of these other drugs. Alcohol was involved in 19.5 to 28.5 percent of visits involving opiates/opioids, benzodiazepines, or muscle relaxants.

Table 1. ED visits involving nonmedical use of selected pharmaceuticals

	Estimated visits		95% CI	
Drug	Number	Percentage	Lower bound	Upper bound
Opiates/opioids	158,281	31.9	131,292	185,270
Hydrocodone/combinations	42,491		31,831	53,151
Oxycodone/combinations	36,559		28,964	44,154
Methadone	31,874		23,752	39,996
Benzodiazepines	144,385	29.1	115,520	173,250
Alprazolam	49,842		31,085	68,599
Clonazepam	26,238		20,581	31,895
Muscle relaxants	28,338	5.7	19,896	36,780
Carisoprodol	17,366		11,170	23,562
Cyclobenzaprine	5,932		4,258	7,606
All ED visits involving nonmedical use of pharmaceuticals	495,732	100.0	408,285	583,179

Note: CI = confidence interval.

Source: Office of Applied Studies, SAMHSA, Drug Abuse Warning Network, 2004 (September 2005 update).

Age

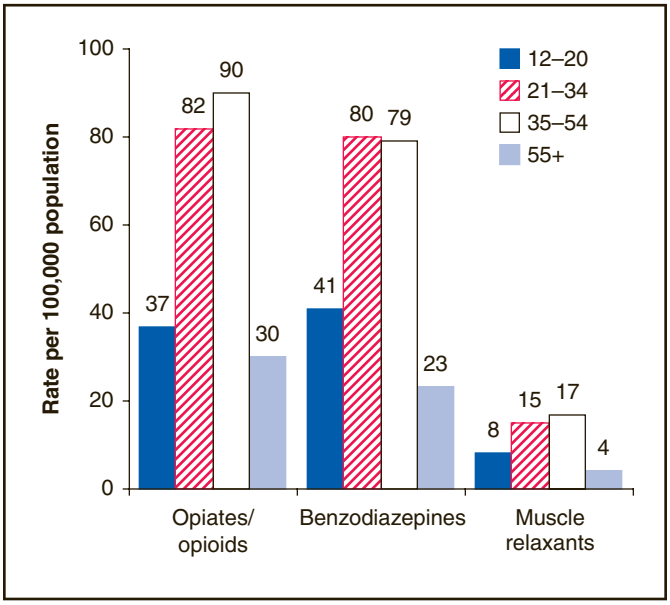
Patients aged 21 to 54 had the highest rates of ED visits for nonmedical use for all three drug classes (Figure 2). There was no statistically significant difference in the rates for individuals aged 21 to 34 and those aged 35 to 54. For opiates/opioids, there was no statistically significant difference in the rates between patients aged 12 to 20 and those aged 55 and older. For benzodiazepines and muscle relaxants, patients aged 12 to 20 had lower rates than those 21 to 54, but higher rates than those 55 and older.

Discharge from the ED

Overall, about half of ED visits involving nonmedical use of opiates/opioids, benzodiazepines, or muscle relaxants ended with no evidence of follow-up care: ranging from 54.7 percent for opiates/opioids to 46.3 percent for benzodiazepines (Figure 3). Follow-up care is defined broadly to include referrals to detoxification or substance abuse treatment services, admission to an inpatient unit in the hospital, or transfer to another health care facility.

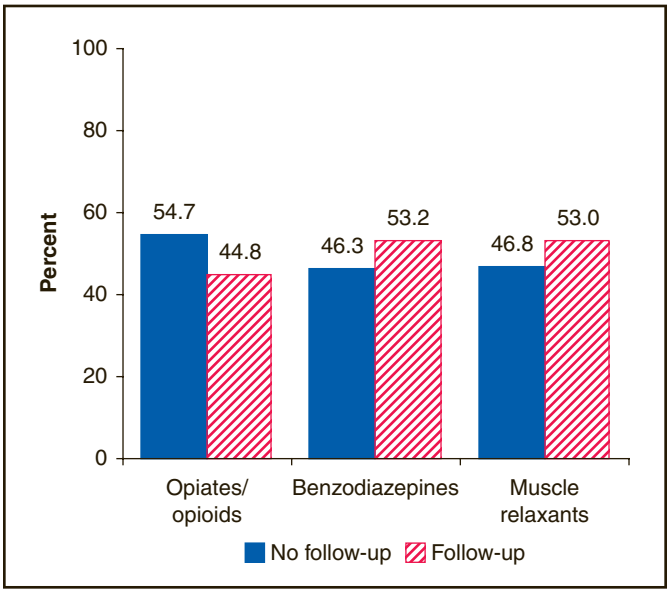
As a disposition from the ED, deaths accounted for less than 1 percent of visits. However, these estimates do not account for patient deaths occurring before reaching the ED, after admission to an inpatient unit, or after transfer to another facility.

Figure 2. Rates of ED visits for selected pharmaceuticals, by age



Source: Office of Applied Studies, SAMHSA, Drug Abuse Warning Network, 2004 (September 2005 update).

Figure 3. Discharge status of ED visits involving nonmedical use of selected pharmaceuticals



Source: Office of Applied Studies, SAMHSA, Drug Abuse Warning Network, 2004 (September 2005 update).

Notes

1. McCabe, S. E., & Boyd, C. J. (2005). Sources of prescription drugs for illicit use. *Addictive Behaviors*, *30*(7), 1342–1350.
2. Janofsky, M. (2004, March 18). Drug fighters turn to rising tide of prescription abuse. *New York Times*, Section A, p. 24.
3. Nonmedical use is defined as use of prescription-type drugs not prescribed for the respondent by a physician or used only for the experience or feeling they caused. Nonmedical use of any prescription-type pain reliever, sedative, stimulant, or tranquilizer does not include over-the-counter drugs.
4. The DAWN category of "pharmaceuticals" includes chemical agents that are inhaled for psychogenic purposes.
5. Joranson, D. E., Ryan, K. M., Gilson, A. M., & Dahl, J. L. (2000). Trends in medical use of opioid analgesics. *JAMA*, *283*(13), 1710–1714.
6. American Pain Society. (2003). Principles of analgesic use in the treatment of acute pain and cancer pain, fifth edition. Glenview, IL: Author.
7. McQuay, H. (1999). Opioids in pain management. *Lancet*, *353*(9171), 2229–2232.
8. Holbrook, A. M., Crowther, R., Lotter, A., Cheng, C., & King, D. (2000, January 25). Meta-analysis of benzodiazepine use in the treatment of insomnia. *Canadian Medical Association Journal*, *162*(2), 225–233.
9. Chabal, C., Erjavec, M. K., Jacobson, L., Mariano, A., & Chaney, E. (1997, June). Prescription opiate abuse in chronic pain patients: Clinical criteria, incidence, and predictors. *Clinical Journal of Pain*, *13*(2), 150–155.
10. National Institute on Drug Abuse. (2001; revised August 2005). *Prescription drugs: Abuse and addiction*. (Report No. NIH Publication No. 05-4881 & NIH Publication No. 01-4881, NIDA Research Report Series). Rockville, MD: U.S. Department of Health and Human Services, National Institutes of Health. [Available at http://www.drugabuse.gov/ResearchReports/Prescription/Prescription.html]
11. Specialty hospitals, including children's hospitals, are not included in the DAWN sample.

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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 or death 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 is always included for minors. DAWN's method of classifying drugs was derived from the Multum Lexicon, Copyright © 2005, 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 information on other OAS surveys, go to http://www.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.