

# The CBHSQ Report

Short Report

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## EMERGENCY DEPARTMENT VISITS INVOLVING NONMEDICAL USE OF THE ANTI-ANXIETY MEDICATION ALPRAZOLAM

### AUTHORS

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### INTRODUCTION

Alprazolam falls into a class of drugs known as benzodiazepines, which are prescription medications used to treat anxiety, insomnia, depression, and panic disorders. Alprazolam, which is known by brand names Xanax®, Xanax XR®, and Niravam®, was the 13th most commonly sold medication in 2012 and was the psychiatric medication most commonly prescribed in 2011.<sup>1,2</sup>

When used as directed, alprazolam can be safe and effective; however, this drug can have serious health consequences when taken without medical supervision or in larger amounts than prescribed. Even short-term use can lead to dependence, causing withdrawal symptoms such as tremors and seizures.<sup>3</sup> Alprazolam also has been shown to be significantly more toxic than other benzodiazepines if more than the prescribed amount is taken.<sup>4</sup> Furthermore, if alprazolam is combined with other drugs that depress the central nervous system (CNS)—such as narcotic pain relievers—the effects of these drugs on the body can be dangerously enhanced.<sup>3</sup>

The Drug Abuse Warning Network (DAWN) is a public health surveillance system that monitors drug-related emergency department (ED) visits in the United States and can be used to track alprazolam-related ED visits involving nonmedical use. To be a DAWN case, an ED visit must involve a drug, either as the direct cause of the visit or as a contributing factor. Nonmedical use of drugs includes: (1) taking more than the prescribed dose, (2) taking a drug that was prescribed for another individual, (3) being deliberately poisoned with a drug by another person, or (4) documented misuse or abuse of a drug. Nonmedical use visits may include the use of alprazolam only or in combination with other pharmaceuticals, illicit drugs, or alcohol. This issue of *The DAWN Report* highlights characteristics of alprazolam-related ED visits involving nonmedical use in 2011 as well as recent trends.



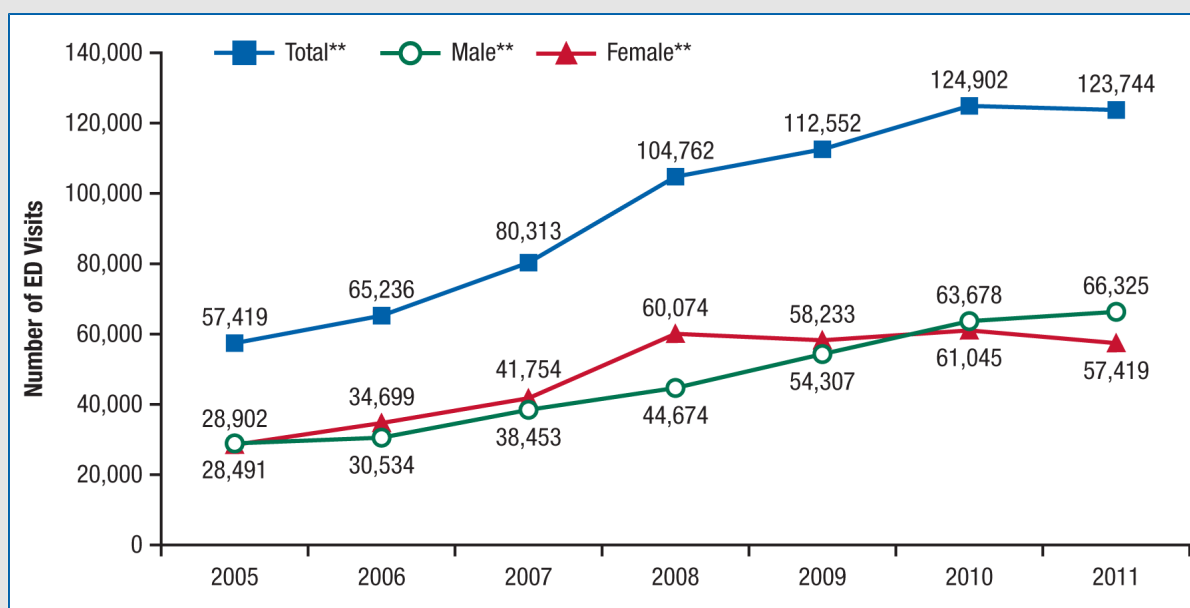
### In Brief

- The estimated number of alprazolam-related emergency department (ED) visits involving nonmedical use doubled from 57,419 visits in 2005 to 124,902 visits in 2010, but then remained stable in 2011 (123,744 visits).
- Between 2005 and 2011, the estimated number of ED visits involving nonmedical use of alprazolam among patients aged 25 to 34 increased threefold; visits in this age group accounted for approximately one third (32 percent) of visits in 2011.
- Among alprazolam-related ED visits involving nonmedical use, 19 percent involved alprazolam only. Alprazolam was used in combination with another drug in 39 percent of visits, with two drugs in 21 percent of visits, and with three or more drugs in 21 percent of visits.

## OVERVIEW AND TRENDS

The estimated number of alprazolam-related ED visits involving nonmedical use doubled from 57,419 visits in 2005 to 124,902 visits in 2010, but then remained stable in 2011 (123,744 visits) (Figure 1). These visits accounted for 10 percent of all ED visits involving nonmedical use of pharmaceuticals in 2011.

**Figure 1. Trends in Alprazolam-Related Emergency Department (ED) Visits Involving Nonmedical Use, by Gender\*: 2005 to 2011**



\* Because gender is unknown in a small number of visits, estimates for males and females do not add to the total.

\*\* The change from 2005 to 2011 is statistically significant at the .05 level.

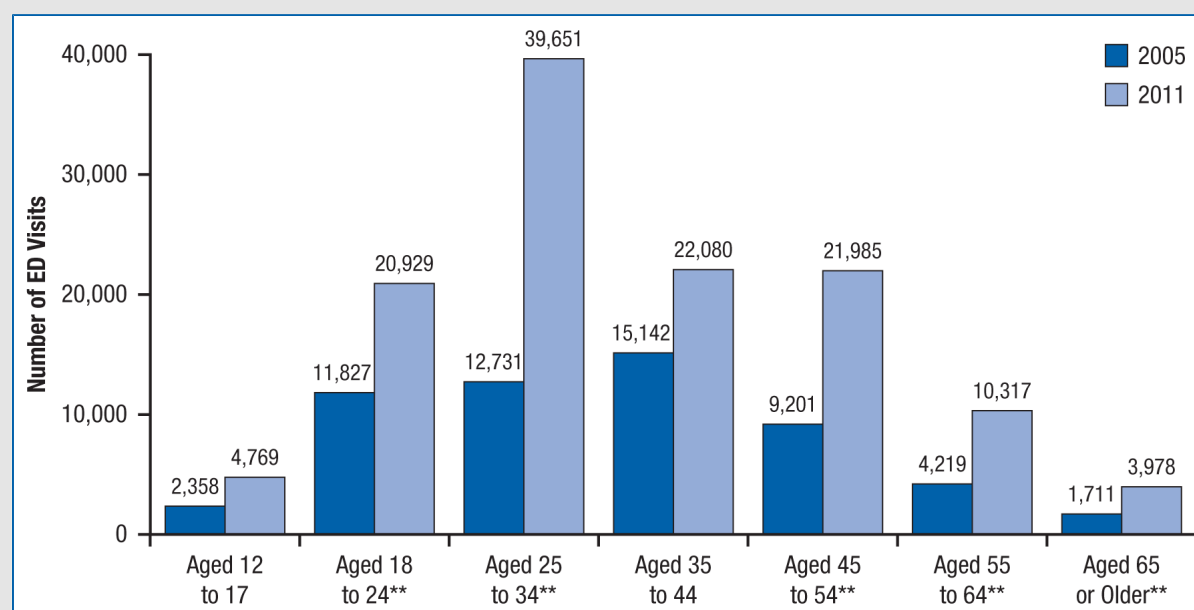
Source: 2005 to 2011 SAMHSA Drug Abuse Warning Network (DAWN).

## GENDER AND AGE

The proportion of alprazolam-related ED visits involving nonmedical use was approximately equal for males and females, and there was a significant increase in the number of visits from 2005 to 2011 for both genders (Figure 1). However, trend patterns over time were somewhat different. For males, there was a steady increase in the estimated number of visits from 28,902 visits in 2005 to 66,325 visits in 2011. For females, the estimated number of visits increased from 28,491 visits in 2005 to 60,074 visits in 2008, then remained steady through 2011.

Visits made by patients aged 25 to 34 accounted for approximately one third (32 percent) of alprazolam-related ED visits involving nonmedical use in 2011. The number of ED visits in this age group increased threefold from 12,731 visits in 2005 to 39,651 in 2011 (Figure 2). Review of annual estimates shows that during 2005 and 2006, the highest percentage of alprazolam ED visits occurred in the 35 to 44 age group, and shifted in 2007 through 2011 to the 25 to 34 age group (data not shown). Visits for other age groups, except for patients aged 12 to 17 and patients aged 35 to 44, also experienced statistically significant increases from 2005 to 2011.

**Figure 2. Age Distribution of Alprazolam-Related Emergency Department (ED) Visits Involving Nonmedical Use, by Year\*: 2005 and 2011**



\* Because age is unknown in a small number of visits, age group estimates do not add to the total.

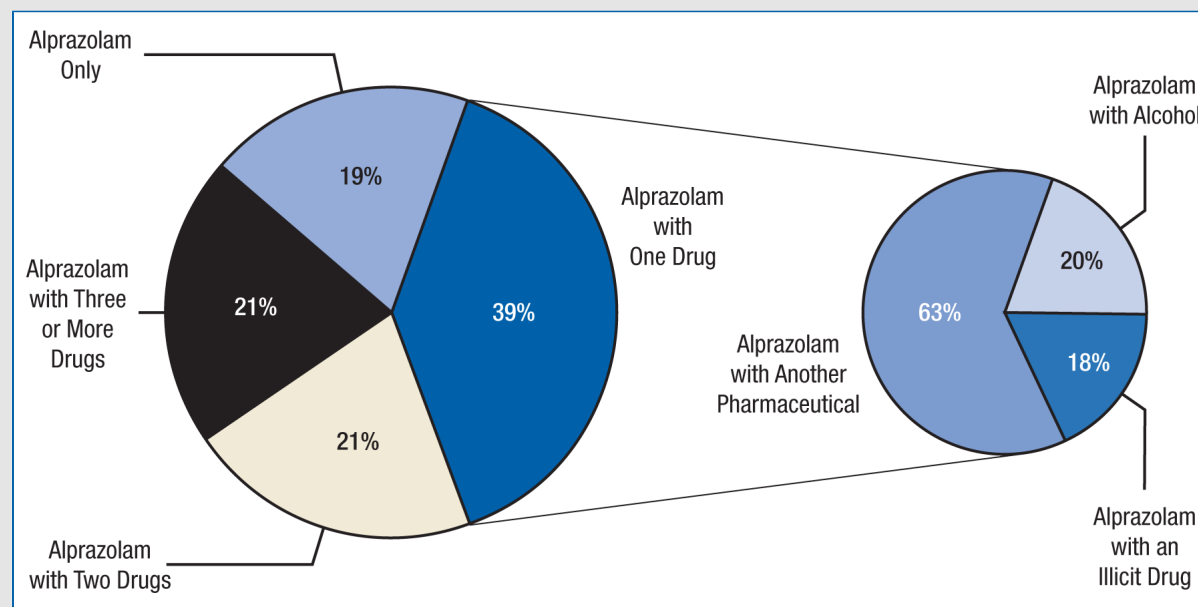
\*\* The change from 2005 to 2011 is statistically significant at the .05 level.

Source: 2005 and 2011 SAMHSA Drug Abuse Warning Network (DAWN).

## DRUG COMBINATIONS WITH ALPRAZOLAM

In 2011, most alprazolam-related ED visits involved nonmedical use in combination with another drug (81 percent); only 19 percent involved alprazolam only. Alprazolam was combined with one drug in 39 percent of visits, two drugs in 21 percent of visits, and three or more drugs in 21 percent of visits (Figure 3).

**Figure 3. Number of Drugs Involved in Emergency Department (ED) Visits Involving Nonmedical Use of Alprazolam, with Drug Combination Details for Visits Involving Alprazolam Combined with One Drug\*: 2011**



\* Percentages may not sum to 100 due to rounding.

Source: 2011 SAMHSA Drug Abuse Warning Network (DAWN).

Among the 47,756 ED visits involving alprazolam with one other drug, 63 percent involved another pharmaceutical (Figure 3). More specifically, 36 percent involved pain relievers (e.g., oxycodone) and 9 percent involved other anti-anxiety or insomnia medications (including other benzodiazepines) (Table 1). The remaining visits involving alprazolam with one other drug involved alcohol (20 percent) or an illicit drug (18 percent).

Among the 51,898 ED visits involving alprazolam with two or more drugs, 85 percent involved other pharmaceuticals (Table 1). More specifically, 64 percent involved pain relievers, and 25 percent involved other anti-anxiety or insomnia medications. Nearly half (46 percent) involved illicit drugs, and 39 percent involved alcohol.

**Table 1. Drug Combinations among Emergency Department (ED) Visits Involving Nonmedical Use of Alprazolam, by Number of Drugs Involved: 2011**

	Percentage of ED visits involving alprazolam with one drug*	Percentage of ED visits involving alprazolam with two or more drugs**
<b>Total visits involving alprazolam</b>	<b>100</b>	<b>100</b>
Other pharmaceuticals	63	85
Pain relievers	36	64
Narcotic pain relievers	32	57
Other anti-anxiety or insomnia medications	9	25
Other benzodiazepines	4	17
Muscle relaxants	5	9
Alcohol	20	39
Illicit drugs	18	46
Heroin	8	7
Marijuana	4	29

\*Percentages may not sum to 100 due to rounding.

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

Source: 2011 SAMHSA Drug Abuse Warning Network (DAWN).

## DISPOSITION OF ED VISITS, BY DRUG COMBINATION

Alprazolam is known to interact with other drugs, including other CNS depressants (i.e., pain relievers and other anti-anxiety and insomnia medications). As expected, visits involving alprazolam only resulted in a lower percentage of hospital admissions (21 percent) than visits involving alprazolam and other CNS depressants (30 percent) (Table 2). The percentage of hospital admissions involving alprazolam and other CNS depressants was similar to the percentage of admissions involving alprazolam combined with drugs other than CNS depressants (29 percent).

**Table 2. Disposition of Alprazolam-Related Emergency Department (ED) Visits Involving Nonmedical Use of Pharmaceuticals, by Drug Combination: 2011**

	Alprazolam only	Alprazolam with other CNS depressants*	Alprazolam with other drugs, excluding CNS depressants*
Number of ED visits	24,090	60,041	39,614
Percentage treated and released	64%	58%	62%
Percentage admitted	21%	30%**	29%
Percentage transferred	8%	8%	6%
Percentage with other disposition	7%	4%	4%

\*CNS depressants include pain relievers and anti-anxiety and insomnia medications.

\*\*Compared to visits involving alprazolam only, the difference is statistically significant at the .05 level.

Source: 2011 SAMHSA Drug Abuse Warning Network (DAWN).

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## DISCUSSION

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Over the 7-year period from 2005 to 2011, alprazolam-related ED visits involving nonmedical use increased substantially through 2010 and then remained stable from 2010 to 2011. The same trend was found for substances secured in law enforcement operations and analyzed by Federal, State, and local forensic laboratories; these data are summarized in the National Forensic Laboratory Information System (NFLIS) Annual Report. In 2011, alprazolam was ranked seventh on the NFLIS list of the 25 most frequently reported drugs in laboratory reports, with an estimated 43,231 total reports.<sup>5</sup>

The age distribution of alprazolam-related ED visits involving nonmedical use changed between 2005 and 2011. In 2005, patients aged 25 to 34 had a similar number of visits as other young and middle adult age groups (18 to 24 and 35 to 54). However, by 2011, the 25 to 34 age group had nearly twice the number of visits as other young and middle adult age groups. This suggests that adults aged 25 to 34 may have the greatest need for interventions addressing nonmedical use of alprazolam.

Physicians prescribing alprazolam should warn patients against combining alprazolam with other medications, alcohol, or illicit drugs.<sup>3</sup> Patients should also be advised to only take prescription medications prescribed for themselves and take no more than the prescribed amount of alprazolam to avoid adverse health effects that may require urgent medical attention. Prevention and education campaigns should continue to focus on the dangers of sharing prescription medications, the importance of preventing others from having access to personal prescription medications, and methods for properly disposing of remaining dosage units once the need for medication has passed.

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## SUGGESTED CITATION

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## SUMMARY

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**Background:** Alprazolam is a benzodiazepine used to treat anxiety, insomnia, depression, and panic disorders. When taken without medical supervision or in larger amounts than prescribed (e.g., nonmedical use (NMU)) of alprazolam can have serious health consequences. Even short-term use can lead to dependence, causing withdrawal symptoms such as tremors and seizures. In 2011, the estimated number of emergency department (ED) visits in the Drug Abuse Warning Network (DAWN) involving nonmedical use of alprazolam accounted for 10 percent of all ED visits involving nonmedical use of pharmaceuticals. **Methods:** National estimates of alprazolam-related ED visits involving NMU were analyzed using data from the 2005 to 2011 DAWN. We examined trends by age and gender, other drugs identified in these ED visits and the disposition of visits that resulted in admission to the hospital or transfer to another health care facility and those treated and released. **Results:** The estimated number of alprazolam-related ED visits involving NMU doubled from 57,419 visits in 2005 to 124,902 visits in 2010, but then remained stable in 2011 with 123,744 visits. The proportion of alprazolam-related ED visits involving NMU was approximately equal for males and females; there was a significant increase in the number of visits from 2005 to 2011 for both genders. Between 2005 and 2011, the estimated number of ED visits involving NMU of alprazolam among patients aged 25 to 34 increased threefold; visits in this age group accounted for 32% of visits in 2011. Among alprazolam-related ED visits involving NMU, 19% involved alprazolam only, 39% involved alprazolam in combination with another drug, 21% in combination with two drugs and 21% with three or more drugs. **Conclusion:** The age distribution of alprazolam-related ED visits involving NMU changed between 2005 and 2011. In 2005, patients aged 25 to 34 had a similar number of visits as other young and middle adult age groups (18 to 24 and 35 to 54). However, by 2011, the 25 to 34 age group had nearly twice the number of visits as other young and middle adult age groups. This suggests that adults aged 25 to 34 may have the greatest need for interventions addressing NMU of alprazolam.

**Key words:** alprazolam, nonmedical use, Drug Abuse Warning Network, DAWN

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## AUTHOR INFORMATION

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## KEYWORDS

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Age Group, Gender, Short Report, Emergency Department Data, 2005, 2006, 2007, 2008, 2009, 2010, 2011, Law Enforcement, People with Substance Use or Abuse Problems as Audience, Policymakers, Prevention Professionals, Public Health Professionals, Public Officials, Substance Abuse, Females, Males, Drug Use Trends, Alcohol, Alprazolam, Heroin, Marijuana, Muscle Relaxants, Multi-Year Trend, All US States Only

The Substance Abuse and Mental Health Services Administration (SAMHSA) is the agency within the U.S. Department of Health and Human Services that leads public health efforts to advance the behavioral health of the nation. SAMHSA's mission is to reduce the impact of substance abuse and mental illness on America's communities.

The Drug Abuse Warning Network (DAWN) was a public health surveillance system that monitors drug-related morbidity and mortality. DAWN used 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 produced 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 was included in DAWN. All types of drugs - licit and illicit - were covered. Alcohol involvement was documented for patients of all ages if it occurred with another drug. Alcohol was considered an illicit drug for minors and was documented even if no other drug was involved. The classification of drugs used in DAWN was derived from the Multum Lexicon, copyright 2012 Lexi-Comp, Inc., and/or Cerner Multum, Inc. The Multum Licensing Agreement governing use of the Lexicon can be found at <http://www.samhsa.gov/data/emergency-department-data-dawn>.

DAWN is one of three major surveys conducted by SAMHSA's Center for Behavioral Health Statistics and Quality (CBHSQ). For more information on other CBHSQ surveys, go to <http://www.samhsa.gov/data/>. SAMHSA contracted 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://www.samhsa.gov/data/emergency-department-data-dawn>.



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