

The CBHSQ Report

Short Report

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EMERGENCY DEPARTMENT VISITS FOR DRUG MISUSE OR ABUSE INVOLVING THE PAIN MEDICATION TRAMADOL

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INTRODUCTION

Tramadol is a type of narcotic (i.e., opioid) pain reliever approved by the U.S. Food and Drug Administration for the management of moderate to moderately severe acute or chronic pain in adults. Tramadol is the active ingredient in the brand name drugs Ultram[®], Ultram ER[®], Ultracet[®], ConZip[®], Ryzolt[®], and Rybix ODT[®].^{1,2,3,4,5,6} Although tramadol offers important medical benefits when used appropriately, it can have serious health consequences when taken without medical supervision, in larger amounts than prescribed, or in combination with illicit drugs, alcohol, or other prescription or over-the-counter (OTC) medications. Tramadol can produce a modest level of physical dependence.⁷

Prescriptions for tramadol increased 88 percent from 23.3 million in 2008 to 43.8 million in 2013.^{7,8}

In 2011, tramadol was ranked ninth in the list of narcotic pain relievers secured in law enforcement operations and analyzed by federal, state, and local forensic laboratories; these data are summarized in the 2011 National Forensic Laboratory Information System (NFLIS) Annual Report.⁹ Increased availability, along with growing concerns about the misuse or abuse of tramadol, prompted the Drug Enforcement Agency and the Department of Health and Human Services to examine data sources estimating tramadol-related events such as emergency department (ED) visits, calls to poison control centers, and forensic laboratory results. Taken together, the data confirmed that misuse or abuse of tramadol appeared to increase from 1995 to 2010.¹⁰ In July 2014, the Drug Enforcement Agency announced that tramadol would be placed into Schedule IV of the Controlled Substance Act—a designation indicating that tramadol has some potential for abuse, although the risk is lower than that for other narcotic pain relievers in Schedules II and III.^{7,11} This report expands on previously published data by including data through 2011 and examines all tramadol-related ED visits involving misuse or abuse of drugs, not limited to just those involving nonmedical use of medications.¹⁰



In Brief

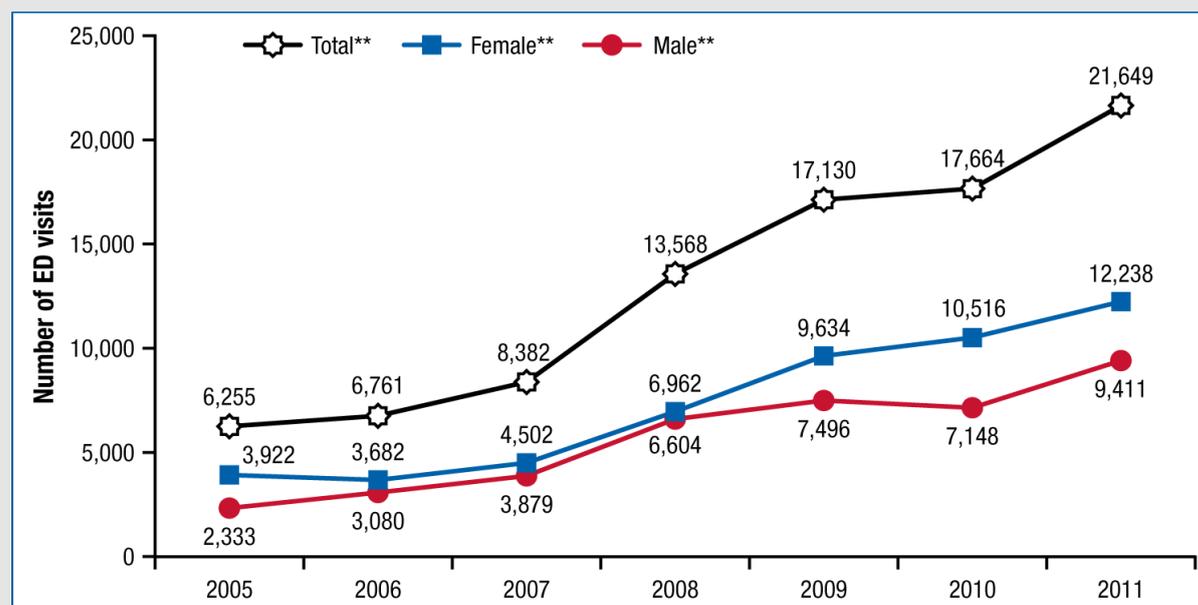
- The estimated number of tramadol-related ED visits involving misuse or abuse increased about 250 percent from 6,255 visits in 2005 to 21,649 in 2011.
- Among tramadol-related ED visits involving misuse or abuse in 2011, 20 percent involved tramadol combined with one other drug, 26 percent involved tramadol combined with two other drugs, and 26 percent involved tramadol combined with three or more drugs.
- Nearly half (47 percent) of visits involved tramadol combined with other pharmaceuticals only; however, 14 percent involved tramadol combined with alcohol, and 12 percent involved tramadol combined with illicit drugs.
- Among tramadol-related ED visits in which the patient was admitted to the hospital or transferred in 2011, about one-third were aged 34 or younger (34 percent) and 31 percent involved patients aged 55 or older; the remainder were aged 45 to 54 (22 percent) or aged 35 to 44 (12 percent).

The Drug Abuse Warning Network (DAWN) was a public health surveillance system that monitored drug-related ED visits in the United States. To be a DAWN case, an ED visit must have involved a drug, either as the direct cause of the visit or as a contributing factor. Data were collected on numerous illicit drugs, including cocaine, marijuana, heroin, and stimulants (e.g., amphetamines and methamphetamines) as well as pharmaceutical products, such as prescription and over-the-counter medications. Data were also collected for visits involving alcohol combined with other drugs and for patients aged 20 or younger where alcohol was the only substance involved in the visit. This report describes tramadol-related visits involving drug misuse or abuse, including (1) taking a higher than prescribed or recommended dose of their own medication, (2) obtaining the drug illegally or 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. It also includes any instances in which the patient took an illegal drug or alcohol in combination with tramadol. This issue of *The CBHSQ Report* highlights trends in tramadol-related visits between 2005 and 2011, as well as selected characteristics of such visits in 2011. More information on DAWN methodology can be found at <http://samhsa.gov/data/2k13/DAWN2k11ED/rpts/DAWN2k11-Methods-Report.htm>.

OVERVIEW AND TRENDS

In 2011, there were an estimated 54,397 ED visits involving tramadol, and 21,649 (40 percent) were attributed to misuse or abuse. The number of tramadol-related ED visits involving misuse or abuse increased about 250 percent from 6,255 visits in 2005 to 21,649 in 2011 (Figure 1).

Figure 1. Trends in tramadol-related emergency department (ED) visits involving drug misuse or abuse, by gender*: 2005 to 2011



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

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

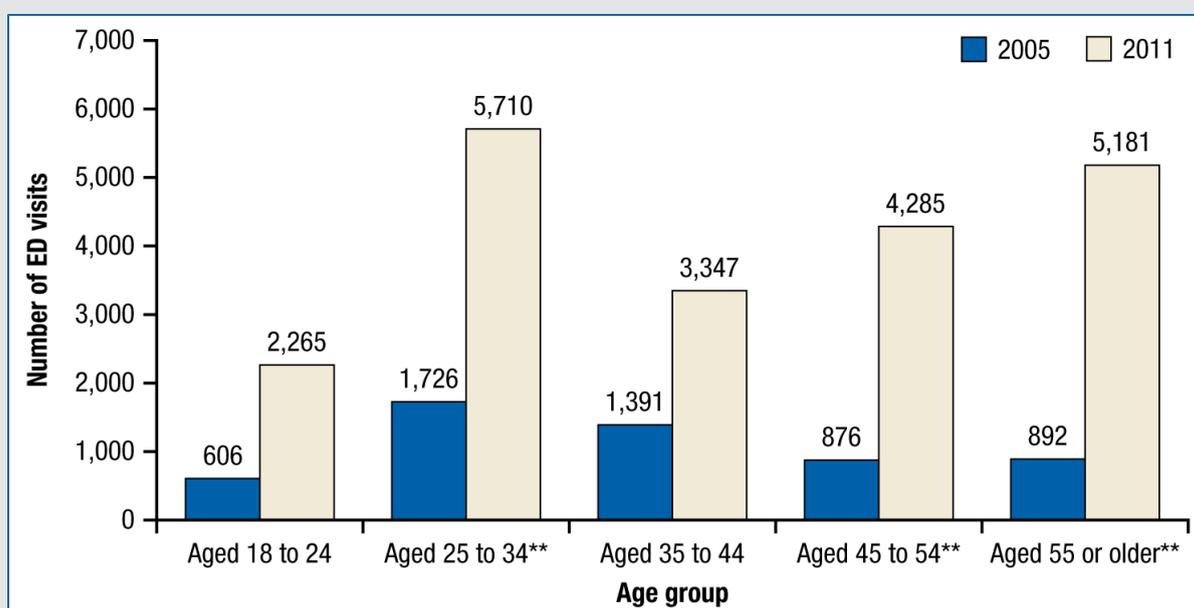
Source: 2005 to 2011 SAMHSA Drug Abuse Warning Network (DAWN).

DEMOGRAPHIC CHARACTERISTICS

Tramadol-related ED visits involving misuse or abuse increased for both males and females from 2005 to 2011; such visits rose overall by 303 percent for males (from 2,333 visits in 2005 to 9,411 visits in 2011) and by 212 percent for females (from 3,922 visits in 2005 to 12,238 visits in 2011) (Figure 1). Females accounted for 63 percent of such visits in 2005. Females continued to account for the majority of visits through 2011, but the difference between males and females was only statistically significant in 2005.

The greatest increase in tramadol-related ED visits involving misuse or abuse occurred among patients aged 55 or older. In this age group, such visits increased 481 percent from 892 visits in 2005 to 5,181 visits in 2011 (Figure 2). Visits also rose 389 percent among patients aged 45 to 54 (from 876 visits in 2005 to 4,285 visits in 2011) and rose 231 percent among patients aged 25 to 34 (from 1,726 visits in 2005 to 5,710 visits in 2011). Tramadol-related visits involving misuse or abuse occurred less often among young adults aged 18 to 24, and no statistically significant change occurred in this age group from 2005 to 2011. Visits among adolescents aged 12 to 17 were suppressed due to low statistical precision.

Figure 2. Age distribution of tramadol-related emergency department (ED) visits involving drug misuse or abuse, by year*: 2005 and 2011



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

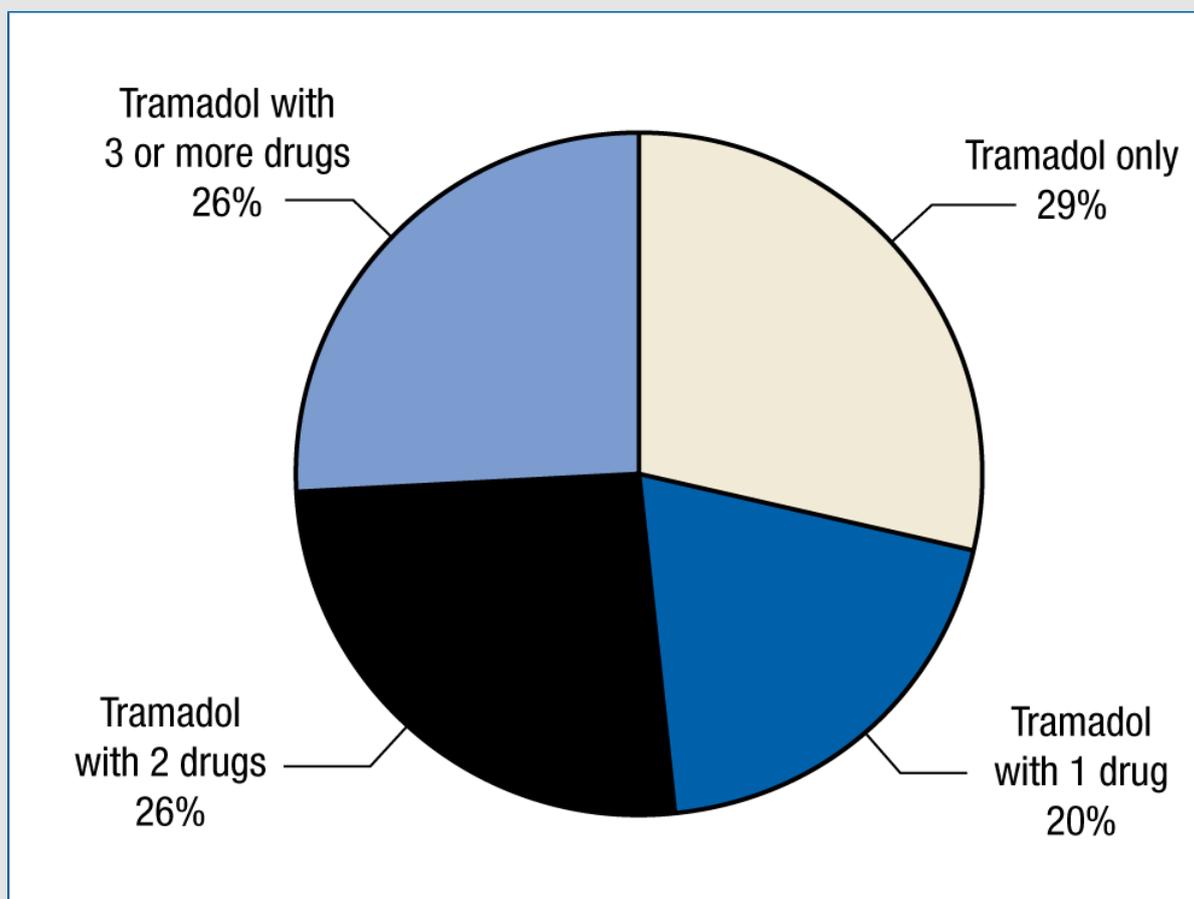
** The change from 2005 to 2011 is statistically significant at the .05 level.

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

DRUG COMBINATIONS INVOLVED IN ED VISITS

Among tramadol-related ED visits involving misuse or abuse in 2011, 29 percent involved tramadol only (Figure 3). Approximately 20 percent involved tramadol combined with one other drug, 26 percent involved tramadol combined with two other drugs, and 26 percent involved tramadol combined with three or more drugs.

Figure 3. Number of drugs involved in tramadol-related emergency department (ED) visits involving drug misuse or abuse*: 2011



* Percentages may not sum to 100 due to rounding.

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

About two-thirds (68 percent) of tramadol-related ED visits involving misuse or abuse in 2011 involved tramadol combined with other pharmaceuticals (Table 1). About one-third (35 percent) involved tramadol combined with other pain relievers, including narcotic pain relievers (32 percent), and about one-third (32 percent) involved tramadol combined with anti-anxiety and insomnia medications, such as benzodiazepines (23 percent) and zolpidem (7 percent). Nearly half (47 percent) of visits involved tramadol combined with other pharmaceuticals only; however, 14 percent involved tramadol combined with alcohol, and 12 percent involved tramadol combined with illicit drugs.

Table 1. Drug combinations among tramadol-related emergency department (ED) visits involving drug misuse or abuse: 2011

Drug combinations	Number of ED visits	Percentage of ED visits
Total visits involving tramadol	21,649	100
Tramadol only	6,176	29
Tramadol in combination with other drugs	15,473	71
Tramadol in combination with other pharmaceuticals	14,733	68
Other pain relievers	7,683	35
Narcotic pain relievers	6,852	32
Oxycodone	3,061	14
Hydrocodone	2,871	13
Anti-anxiety and insomnia medications	6,935	32
Benzodiazepines	5,033	23
Zolpidem	1,547	7
Anticonvulsants	2,201	10
Antidepressants	2,000	9
Selective serotonin reuptake inhibitor (SSRI) antidepressants	*	*
Antipsychotics	851	4
Carisoprodol	*	*
Tramadol in combination with alcohol	2,997	14
Tramadol in combination with illicit drugs	2,517	12
Cocaine	*	*
Heroin	*	*
Marijuana	500	2
Stimulants	*	*
Tramadol in combination with other pharmaceuticals only	10,186	47
Tramadol in combination with alcohol only	561	3
Tramadol in combination with illicit drugs only	*	*

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

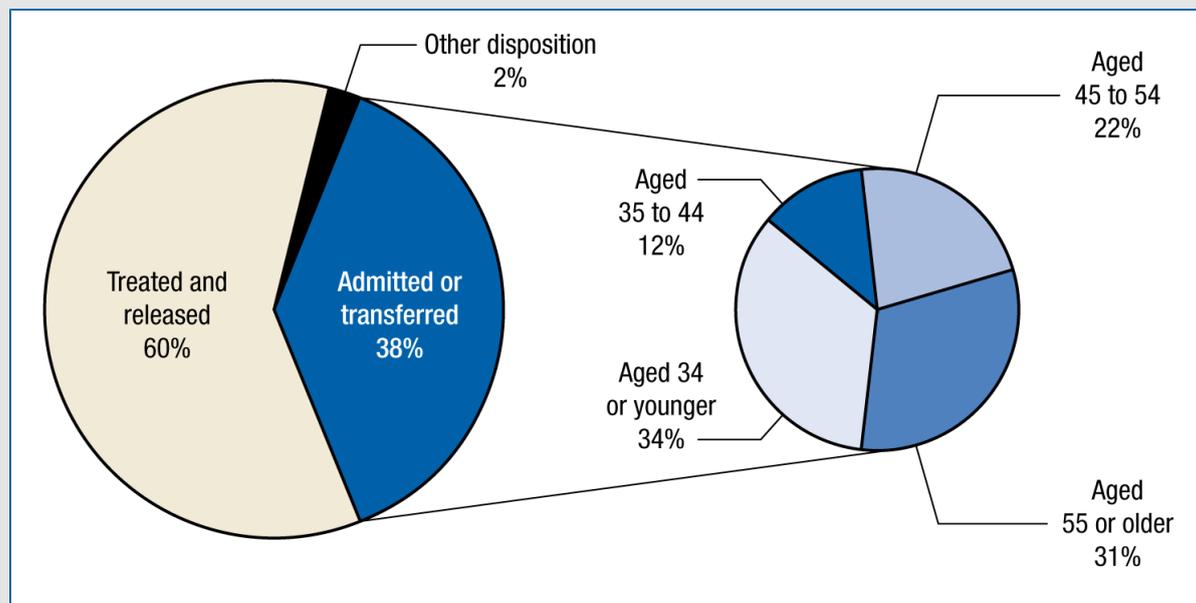
Source: 2011 SAMHSA Drug Abuse Warning Network (DAWN).

DISPOSITION OF ED VISITS

In 2011, the majority of tramadol-related ED visits involving misuse or abuse resulted in the patient being treated and released (60 percent). The remainder of patients were usually admitted to the hospital or transferred to another health care facility (38 percent); other dispositions (e.g., left against medical advice or died) were rare (Figure 4).

Among tramadol-related ED visits in which the patient was admitted to the hospital or transferred in 2011, about one-third were aged 34 or younger (34 percent). Approximately 31 percent of such visits involved patients aged 55 or older, and the remainder were aged 45 to 54 (22 percent) or aged 35 to 44 (12 percent).

Figure 4. Disposition* of tramadol-related emergency department (ED) visits involving misuse or abuse, with age distribution of visits resulting in admission to the hospital or transfer to another health care facility: 2011



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

DISCUSSION

As prescriptions for tramadol increased, tramadol-related ED visits involving drug misuse or abuse also increased from 2005 to 2011.⁸ Federal drug policies were implemented in 2014 to control the manufacture, importation, possession, and use of tramadol.⁷ Combined with these regulations, improved awareness of potential negative health consequences resulting from misuse or abuse of tramadol could help address risky behaviors that can potentially require urgent medical treatment in the ED.

A previous DAWN report showed that narcotic pain reliever-related visits comprised about one-third of ED visits among patients aged 50 or older that involved pharmaceutical misuse or abuse.¹² The current report illustrates that tramadol misuse or abuse may be contributing to the overall problem of narcotic pain reliever misuse or abuse among older adults. Prevention efforts targeted to this population as well as their medical care providers may help reduce ED visits and subsequent hospitalizations, and should remain a public health priority.

The majority of tramadol-related visits for misuse or abuse involved other drugs. When tramadol is combined with other drugs that depress the central nervous system—such as anti-anxiety medications (e.g., benzodiazepines), other narcotic pain relievers, or alcohol—the sedative effects of tramadol can be enhanced.^{1,2,3,4,5,6} Physicians prescribing tramadol can warn against these dangers and advise patients to only take prescription medication prescribed for themselves. 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.

END NOTES

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SUGGESTED CITATION

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SUMMARY

Background: Tramadol is an opioid pain reliever for the management of moderate to moderately severe pain in adults. Prescriptions for tramadol increased 88 percent from 23.3 million in 2008 to 43.8 million in 2013. In July 2014, the U.S. Drug Enforcement Agency (DEA) placed tramadol into Schedule IV of the Controlled Substance Act - a designation indicating that tramadol has some potential for abuse. **Methods:** Data from the 2005-2011 Drug Abuse Warning Network (DAWN) were used to estimate the number of emergency department (ED) visits that involved the misuse or abuse of tramadol. We examined the trends by age and gender, other drugs identified in these ED visits, and the number of visits that resulted in admission to the hospital or transferred to another health care facility. **Results:** Data from the DAWN shows that the number of visits made to emergency departments (EDs) that involved the misuse or abuse of tramadol increased about 250 percent between 2005 and 2011 (6,255 visits in 2005 to 21,649 in 2011). In 2011, about 70 percent of tramadol-related ED visits involving misuse or abuse involved tramadol combined with at least one other drug or alcohol, with nearly half (47 percent) of those visits involving other pharmaceuticals only. In 2011, the majority of tramadol-related ED visits involving misuse or abuse resulted in the patient being treated and released (60%). The remainder of patients were usually admitted to the hospital or transferred to another health care facility. **Conclusion:** Although tramadol offers important medical benefits when used appropriately, it can have serious health consequences when taken without medical supervision, in larger amounts than prescribed, or in combination with illicit drugs, alcohol, or other prescription or over-the-counter (OTC) medications. Physicians prescribing tramadol can warn against these dangers and advise patients to only take prescription medication prescribed for them and as directed, 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.

Key words: tramadol, misuse, abuse, opioids, Drug Abuse Warning Network, DAWN

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KEYWORDS

Age Group, Gender, Short Report, Emergency Department Data, 2011, Men as Audience, Public Health Professionals, Women as Audience, Young Adults as Audience, Nonmedical Use, Overdose, Females, Males, Drug Use Trends, Alcohol, Anti-anxiety Drugs, Antidepressants, Benzodiazepines, Opiate or Opioid, Emergency Department Treatment, Multi-Year Trend, All US States Only, Tramadol

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) 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 involvement is documented for patients of all ages if it occurs with another drug. Alcohol is considered an illicit drug for minors and is documented even if no other drug is involved. The classification of drugs used in DAWN is 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 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://www.samhsa.gov/data/emergency-department-data-dawn>.



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