

# The CBHSQ Report

Short Report

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## EMERGENCY DEPARTMENT VISITS INVOLVING NARCOTIC PAIN RELIEVERS

### AUTHORS

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### INTRODUCTION

Narcotic pain relievers are prescription pain medications that act on the brain to provide relief from pain. Chemically similar to heroin, they also have the potential to produce a feeling of euphoria. Although narcotic pain relievers offer important medical benefits when used appropriately, these drugs can have serious health consequences when taken without medical supervision, in larger amounts than prescribed, or in combination with alcohol or other prescription or over-the-counter (OTC) drugs.<sup>1</sup> Nonmedical use can lead to drug dependence and medical emergencies. An unprecedented rise in overdose deaths involving narcotic pain relievers occurred between 1999 and 2010.<sup>2</sup>

The increasing misuse of narcotic pain relievers over the past decade led to concomitant increases in morbidity and mortality. This prompted the development of new policies to identify and prevent nonmedical use. Many states have established electronic databases to monitor suspected abuse or diversion and have passed laws that curb “pill mills” (i.e., clinics employing physicians that deviate from accepted medical practice when prescribing medications) and “doctor shopping” (i.e., patients who receive similar medications from multiple providers simultaneously).<sup>3,4</sup> Strategies for pain management and risk assessment have been developed for physicians and pharmacists to improve awareness of the problem of narcotic pain reliever abuse.<sup>5</sup> Further safety improvements include guidelines establishing a maximum recommended daily dose and new drug formulations that have abuse deterrent properties.<sup>6,7</sup> At the same time, Risk Evaluation and Mitigation Strategies enable practitioners to safely provide narcotic pain relievers for patients in pain.<sup>8</sup> Furthermore, educational information has been disseminated to warn the public that narcotic pain relievers are as dangerous as illegal drugs if used nonmedically.<sup>9</sup> The numerous efforts implemented to reduce nonmedical use of narcotic pain relievers could potentially ease the public health burden related to misuse of these medications.

The Drug Abuse Warning Network (DAWN) was a public health surveillance system that monitored drug-related emergency department (ED) visits in the United States. DAWN can be used to track narcotic pain reliever-related ED visits involving nonmedical use. 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. Nonmedical use of pharmaceuticals includes: (1) taking more than



### In Brief

- Of the estimated 1,244,872 emergency department (ED) visits involving nonmedical use of pharmaceuticals in 2011, 366,181 (29 percent) involved narcotic pain relievers.
- Narcotic pain reliever-related ED visits involving nonmedical use of pharmaceuticals increased 117 percent from 2005 to 2011, but leveled off from 2008 to 2011.
- ED visits involving oxycodone—the most common narcotic pain reliever among visits involving nonmedical use of pharmaceuticals—increased from 2005 to 2009, but leveled off from 2009 to 2011.
- From 2005 to 2011, all age groups experienced increases in the rate of narcotic pain reliever-related ED visits involving nonmedical use, except for adolescents aged 12 to 17.

**Nonmedical use of pharmaceuticals** includes:

- (1) taking more than the prescribed dose,
- (2) taking a medication that was prescribed for another individual,
- (3) being deliberately poisoned with a medication by another person, and
- (4) documentation in the medical record that a medication was misused or abused.

the prescribed dose, (2) taking a medication that was prescribed for another individual, (3) being deliberately poisoned with a medication by another person, and (4) documentation in the medical record that a medication was misused or abused.

Nonmedical use visits may include the use of narcotic pain relievers alone or in combination with illicit drugs or alcohol. This issue of *The CBHSQ Report* highlights characteristics and trends from 2005 to 2011 for narcotic pain reliever-related ED visits involving nonmedical use. Unless otherwise noted, all comparisons described as increases, decreases, or differences are statistically significant at the .05 level.

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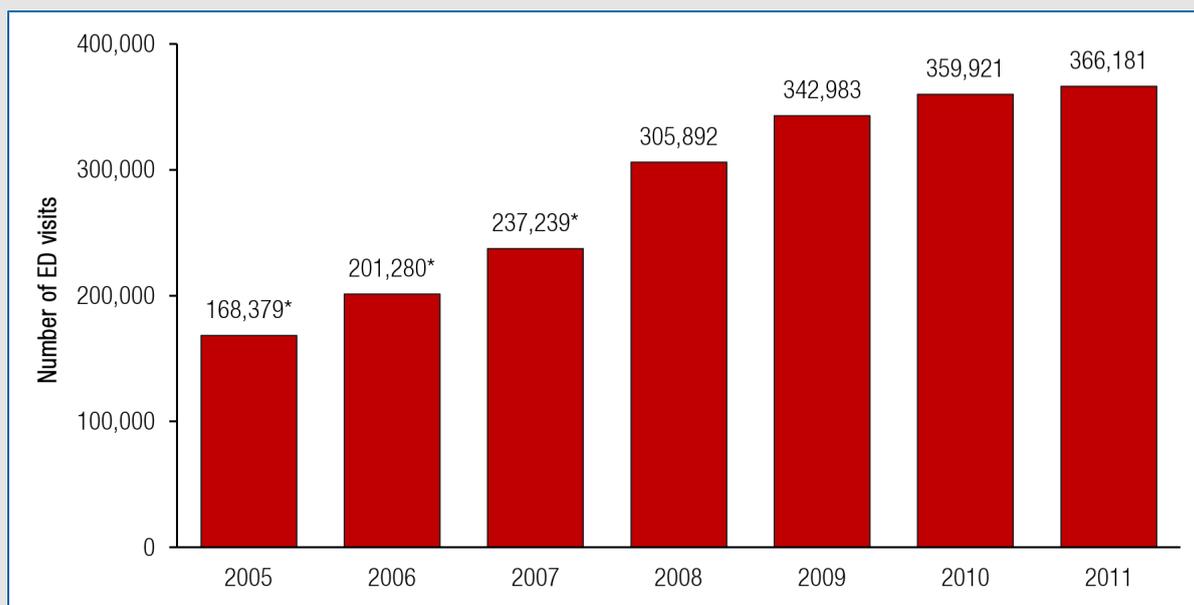
## OVERVIEW

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Of the estimated 1,244,872 ED visits involving nonmedical use of pharmaceuticals in 2011, 366,181 (29 percent) involved narcotic pain relievers. An additional 138,130 visits involved unspecified opiates or opioids. Because it is not possible to determine whether the unspecified opioids/opiates were narcotic pain medications or heroin, they have been excluded from this analysis.

Narcotic pain reliever-related ED visits involving nonmedical use increased 117 percent from 168,379 visits in 2005 to 366,181 visits in 2011 (Figure 1). Recent trends, however, show that the number of visits is becoming more stable, with no change between 2008 and 2011.

**Figure 1. Emergency department (ED) visits involving nonmedical use of narcotic pain relievers: 2005 to 2011**



\* The estimate is statistically significantly different from the 2011 estimate at the .05 level.

Source: Center for Behavioral Health Statistics and Quality, SAMHSA, Drug Abuse Warning Network (DAWN), 2011.

## DRUG COMBINATIONS

To understand the role of narcotic pain relievers or any other drug involved in a drug-related ED visit, it is important to differentiate between the visits that involved a single drug and those that involved multiple drugs. When a single drug is involved, the ED visit can be attributed to that drug (whether it was the direct cause of the visit or a contributing factor), but when multiple drugs are involved, the visit cannot be attributed to a single drug. Furthermore, there are several different reasons why nonmedical use of pharmaceuticals may occur, and when multiple drugs are involved, they may have been taken for different reasons. The narcotic pain relievers in these visits may have been misused or abused or they may have been used appropriately but mixed with other drugs that were being abused or misused.

Among narcotic pain reliever-related ED visits involving nonmedical use that occurred in 2011, 44 percent involved narcotic pain relievers only (Table 1). In the remaining 56 percent of these visits, additional drugs were involved. Multiple drugs may be combined with narcotic pain relievers; therefore, estimates of visits involving specific drugs may add to more than the total number of visits, and percentages may add to more than 100 percent.

**Table 1. Selected drug combinations among narcotic pain reliever-related emergency department (ED) visits involving nonmedical use of pharmaceuticals: 2011**

| Drug combination   | Number of ED visits* | Percent of ED visits* | ED visits per 100,000 population |
|--|----------------------|-----------------------|----------------------------------|
| <b>Total</b>   | <b>366,181</b>       | <b>100</b>            | <b>118</b>                       |
| Narcotic pain relievers only                                 | 160,398              | 44                    | 51                               |
| Narcotic pain relievers in combination with other substances | 205,783              | 56                    | 66                               |
| <b>Narcotic pain relievers in combination with:</b>          |                      |                       |                                  |
| Other pharmaceuticals  | 155,349              | 42                    | 50                               |
| Anti-anxiety and insomnia medications                        | 110,428              | 30                    | 35                               |
| Benzodiazepines  | 103,653              | 28                    | 33                               |
| Muscle relaxants   | 18,161               | 5                     | 6                                |
| Antidepressants  | 17,508               | 5                     | 6                                |
| Antipsychotics   | 9,402                | 3                     | 3                                |
| Illicit drugs  | 71,971               | 20                    | 23                               |
| Marijuana  | 36,391               | 10                    | 12                               |
| Cocaine  | 24,519               | 7                     | 8                                |
| Heroin   | 15,753               | 4                     | 5                                |
| Alcohol  | 50,335               | 14                    | 16                               |

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

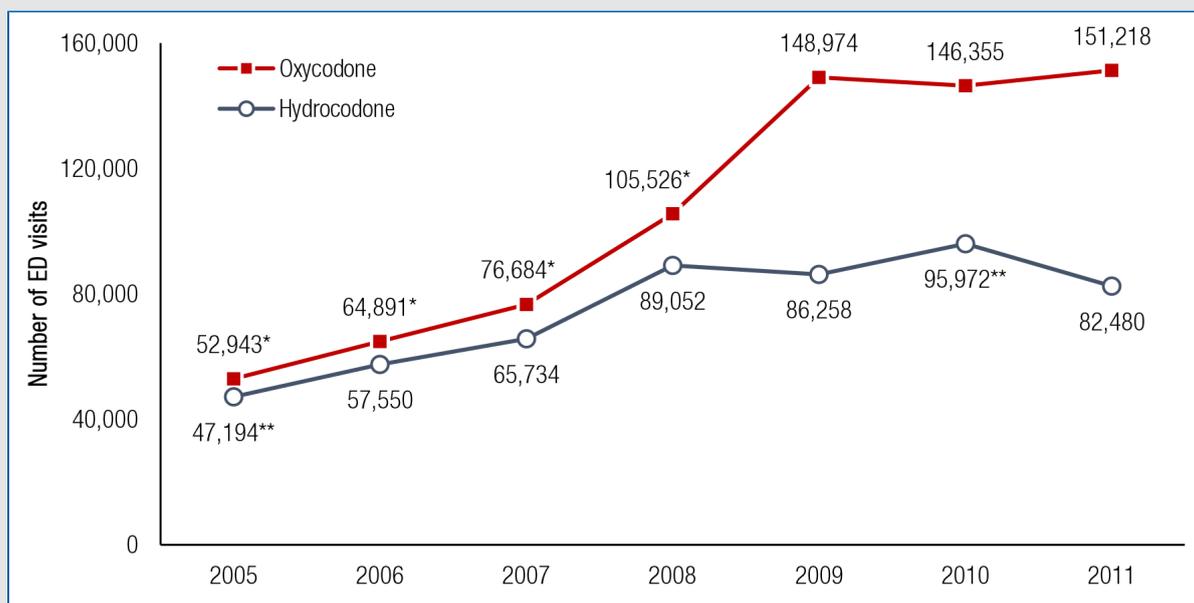
Source: Center for Behavioral Health Statistics and Quality, SAMHSA, Drug Abuse Warning Network (DAWN), 2011.

Narcotic pain relievers were combined with other pharmaceuticals in 42 percent of visits, the most common of which were anti-anxiety and insomnia medications (30 percent of visits) (Table 1). Other pharmaceuticals included benzodiazepines, a type of anti-anxiety medication (28 percent), muscle relaxants (5 percent), antidepressants (5 percent), and antipsychotics (3 percent). Illicit drugs were involved in 20 percent of the nonmedical use visits involving narcotic pain relievers, especially marijuana (10 percent of visits), cocaine (7 percent), and heroin (4 percent). Alcohol was involved in 14 percent of visits.

## TRENDS FOR SPECIFIC NARCOTIC PAIN RELIEVERS

Oxycodone and hydrocodone (including combination products) were two of the most common narcotic pain relievers in ED visits involving nonmedical use.<sup>10</sup> Visits involving oxycodone increased 181 percent from an estimated 52,943 visits in 2005 to 148,974 visits in 2009. The trend for oxycodone stabilized after 2009. Visits involving hydrocodone had an overall increase of 75 percent from an estimated 47,194 visits in 2005 to 82,480 visits in 2011 (Figure 2). However, visits involving hydrocodone remained stable in 2009 and 2010 and decreased 14 percent from 2010 to 2011.

**Figure 2. Emergency department (ED) visits related to nonmedical use of pharmaceuticals involving the narcotic pain relievers oxycodone and hydrocodone: 2005 to 2011**



\* The estimate is statistically significantly different from the 2009 estimate at the .05 level.

\*\* The estimate is statistically significantly different from the 2011 estimate at the .05 level.

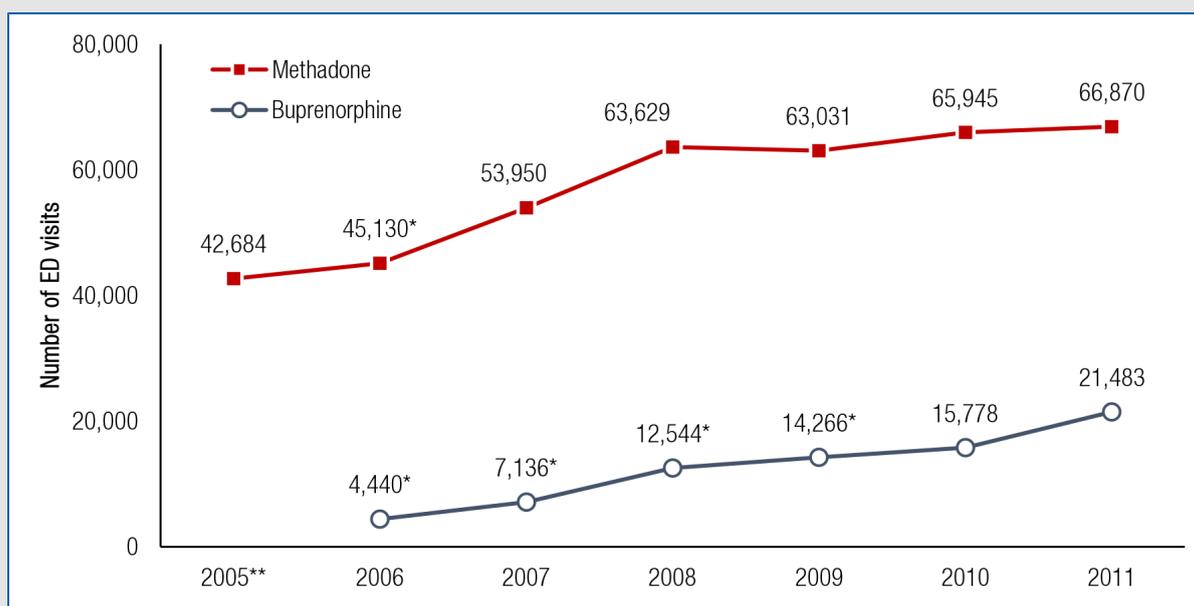
Source: Center for Behavioral Health Statistics and Quality, SAMHSA, Drug Abuse Warning Network (DAWN), 2011.

Two narcotic pain relievers—methadone and buprenorphine—are used to treat addiction to opiates/opioids (i.e., heroin and narcotic pain relievers) by reducing craving and withdrawal symptoms. Methadone has been in use for more than 50 years, while buprenorphine was first approved for opioid treatment in 2002. In the past decade, methadone increasingly has been prescribed for treatment of pain. Previous DAWN reports have described ED visits related to nonmedical use of methadone and buprenorphine.<sup>11,12</sup> Although the overall increase in methadone-related visits from 2005 to 2011 was not statistically significant, there was an increase of 48 percent from 2006 to 2011 (from 45,130 to 66,870 visits) (Figure 3). Buprenorphine-related ED visits involving nonmedical use did not reach a measurable level until 2006 (4,440 visits). The number of these visits then increased 384 percent to 21,483 visits in 2011; more recently, visits increased 51 percent from 14,266 visits in 2009 to 21,483 visits in 2011 (Figure 3).

Morphine and hydromorphone were less common narcotic pain relievers in ED visits involving nonmedical use, but notable increases occurred from 2005 to 2011. Visits involving morphine increased 120 percent, from 15,762 visits in 2005 to 34,593 visits in 2011; however, there were no changes between 2007 and 2011 (Figure 4). Visits involving hydromorphone increased 287 percent, from 4,714 visits in 2005 to 18,224 visits in 2011. No increases occurred between 2008 and 2011.

Fentanyl is primarily used to treat breakthrough pain (i.e., sudden episodes of pain that occur despite round-the-clock treatment with pain medication) in cancer patients.<sup>13</sup> Fentanyl-related ED visits involving nonmedical use appeared to increase from 2005 to 2011, but the difference did not reach statistical significance (Figure 4). Fentanyl has been identified as an ingredient in outbreaks of heroin overdose deaths in the Midwest and Northeast since 2005.<sup>14,15</sup> Fentanyl-related overdoses may not be reflected in estimates of ED visits because hospitals typically do not specifically test for fentanyl. Also, emergency response teams may have little chance to treat patients who use fentanyl because this highly potent opioid can quickly cause death.<sup>16</sup>

**Figure 3. Emergency department (ED) visits related to nonmedical use of pharmaceuticals involving the narcotic pain relievers methadone and buprenorphine: 2005 to 2011**



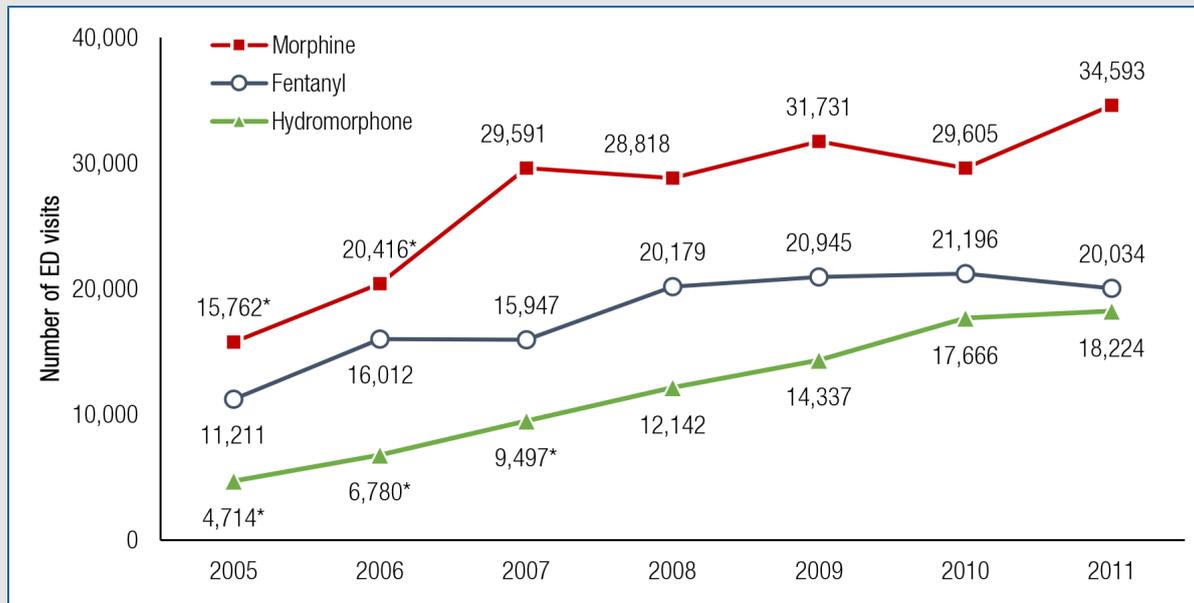
\* The estimate is statistically significantly different from the 2011 estimate at the .05 level.

\*\* The 2005 estimate for buprenorphine-related ED visits was suppressed due to low statistical precision.

Source: Center for Behavioral Health Statistics and Quality, SAMHSA, Drug Abuse Warning Network (DAWN), 2011.

Codeine is typically prescribed in doses that relieve mild or moderate pain.<sup>17</sup> Codeine-related ED visits involving nonmedical use remained steady from 2005 to 2011 (Figure 5). Propoxyphene was prescribed for mild to moderate pain. Visits involving propoxyphene showed an initial upward trend, but decreased 81 percent from 2010 to 2011 (from 8,832 to 1,655 visits). This is likely the result of propoxyphene being withdrawn from the U.S. market in 2010 because of safety concerns.<sup>18</sup>

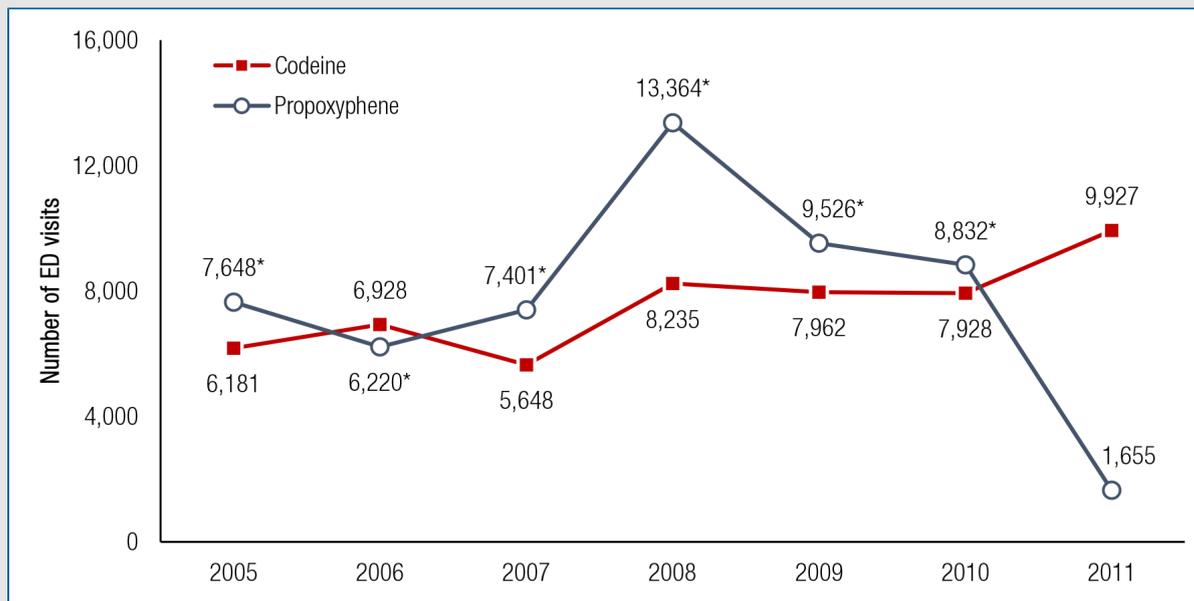
**Figure 4. Emergency department (ED) visits related to nonmedical use of pharmaceuticals involving the narcotic pain relievers morphine, fentanyl, and hydromorphone: 2005 to 2011**



\* The estimate is statistically significantly different from the 2011 estimate at the .05 level.

Source: Center for Behavioral Health Statistics and Quality, SAMHSA, Drug Abuse Warning Network (DAWN), 2011.

**Figure 5. Emergency department (ED) visits related to nonmedical use of pharmaceuticals involving the narcotic pain relievers codeine and propoxyphene: 2005 to 2011**



\* The estimate is statistically significantly different from the 2011 estimate at the .05 level.

Source: Center for Behavioral Health Statistics and Quality, SAMHSA, Drug Abuse Warning Network (DAWN), 2011.

In 2011, the number of narcotic pain reliever-related ED visits involving nonmedical use was similar for males and females (185,431 and 180,654 visits, respectively). Trends between 2005 and 2011 were also similar for males and females; visits increased 121 percent for males (from 83,882 visits in 2005 to 185,431 visits in 2011) and 114 percent for females (from 84,458 visits in 2005 to 180,654 visits in 2011).

For female patients, five of the individual narcotic pain relievers—oxycodone, hydrocodone, methadone, morphine, and hydromorphone—showed increases from 2005 to 2011, with some drugs increasing more than others (Table 2). For example, although hydrocodone was the drug most commonly involved in visits by females in 2005, oxycodone became the drug most commonly involved among female patients in 2009 and remained so through 2011. Similarly, hydromorphone was one of the least commonly involved drugs in 2005 but outnumbered both fentanyl and codeine by 2011. Both oxycodone- and hydromorphone-related visits tripled among female patients from 2005 to 2011. At the same time, visits involving morphine doubled and visits involving methadone and hydrocodone increased by 85 and 62 percent, respectively.

For male patients, there were also five types of narcotic pain relievers that showed increases from 2005 to 2011—oxycodone, hydrocodone, morphine, hydromorphone, and fentanyl (Table 2). Methadone-related visits did not increase for males, but fentanyl-related visits increased by 247 percent. Oxycodone was the most common drug in visits by males in 2005, and it remained the top drug through 2011. Hydromorphone-related visits increased more than 300 percent among male patients from 2005 to 2010, but no increase occurred from 2010 to 2011.

**Table 2. Number of narcotic pain reliever-related emergency department (ED) visits involving nonmedical use of pharmaceuticals, by gender\*: 2005 to 2011**

|                | 2005   | 2006   | 2007   | 2008   | 2009   | 2010   | 2011   | Percent change:<br>2005 vs. 2011 |
|----------------|--------|--------|--------|--------|--------|--------|--------|----------------------------------|
| <b>Females</b> |        |        |        |        |        |        |        |                                  |
| Oxycodone      | 22,828 | 29,064 | 36,383 | 47,873 | 66,361 | 67,602 | 73,353 | 221                              |
| Hydrocodone    | 25,573 | 30,955 | 37,433 | 50,193 | 45,331 | 51,719 | 41,531 | 62                               |
| Methadone      | 18,186 | 18,809 | 23,364 | 27,976 | 29,402 | 28,773 | 33,734 | 85                               |
| Buprenorphine  | **     | **     | 3,345  | 4,674  | 5,382  | 5,443  | 10,478 | ***                              |
| Morphine       | 8,358  | 10,532 | 11,953 | 14,904 | 18,196 | 14,715 | 17,903 | 114                              |
| Hydromorphone  | 2,795  | 4,050  | 6,054  | 7,235  | 7,845  | 8,351  | 10,134 | 263                              |
| Fentanyl       | 7,711  | 8,542  | 8,913  | 10,491 | 10,632 | 11,123 | 7,892  | ***                              |
| Codeine        | 3,749  | 3,892  | 3,687  | 4,497  | 3,904  | 4,731  | 5,565  | ***                              |
| Propoxyphene   | 4,744  | 3,939  | 4,626  | **     | 6,016  | 5,886  | **     | ***                              |
| <b>Males</b>   |        |        |        |        |        |        |        |                                  |
| Oxycodone      | 30,089 | 35,827 | 40,298 | 57,647 | 82,606 | 78,685 | 77,781 | 159                              |
| Hydrocodone    | 21,615 | 26,590 | 28,298 | 38,855 | 40,923 | 44,251 | 40,948 | 89                               |
| Methadone      | 24,494 | 26,316 | 30,343 | 35,620 | 33,612 | 37,126 | 33,133 | ***                              |
| Buprenorphine  | **     | 1,884  | 3,788  | 7,870  | 8,884  | 10,335 | 11,005 | ***                              |
| Morphine       | 7,405  | 9,875  | 17,639 | 13,913 | 13,535 | 14,886 | 16,688 | 125                              |
| Hydromorphone  | 1,919  | 2,726  | 3,342  | 4,907  | 6,492  | 9,315  | 8,089  | 321                              |
| Fentanyl       | 3,501  | 7,468  | 7,031  | 9,688  | 10,313 | 10,073 | 12,142 | 247                              |
| Codeine        | 2,429  | 3,036  | 1,960  | 3,738  | 4,052  | 3,197  | 4,356  | ***                              |
| Propoxyphene   | 2,904  | 2,281  | 2,775  | 2,916  | 3,510  | 2,944  | **     | ***                              |

\* ED visits where gender is unknown have been excluded.

\*\* Low precision; no estimate reported.

\*\*\* The difference between the number of visits in 2005 and 2011 was either not significant at the .05 level or not measurable due to suppression of estimates.

Source: Center for Behavioral Health Statistics and Quality, SAMHSA, Drug Abuse Warning Network (DAWN), 2011.

In 2011, as Table 3 shows, ED visits by each age group showed different patterns of narcotic pain reliever involvement. For visits involving nonmedical use of pharmaceuticals by adolescents aged 12 to 17, hydrocodone-related visits outnumbered oxycodone-related visits (4,459 and 3,467 visits, respectively). For all other age groups, oxycodone-related visits outnumbered hydrocodone-related visits.

Methadone-related visits involving nonmedical use were rare among adolescents in 2011; however, methadone was within the top three drugs among all adult age groups except those aged 55 or older. Among this oldest age group, morphine-related visits outnumbered methadone-related visits (12,984 and 9,014 visits, respectively) (Table 3).

Buprenorphine-related visits involving nonmedical use were rare among adolescents and adults aged 55 or older in 2011. Among adults aged 18 to 25 and aged 26 to 34, buprenorphine-related visits were within the top four narcotic pain relievers (6,778 and 5,915 visits, respectively). However, for adults aged 45 to 54, buprenorphine was the least common reportable narcotic pain reliever (2,009 visits) (Table 3).

**Table 3. Narcotic pain reliever-related emergency department (ED) visits involving nonmedical use of pharmaceuticals, by age group\*: 2011**

|                  | All narcotic pain relievers** | Oxy-codone | Hydro-codone | Metha-done | Bupre-norphine | Morphine | Hydro-morphone | Codeine | Fentanyl |
|------------------|-------------------------------|------------|--------------|------------|----------------|----------|----------------|---------|----------|
| Aged 12 to 17    | 8,486                         | 3,467      | 4,459        | ***        | ***            | ***      | ***            | ***     | ***      |
| Aged 18 to 25    | 70,778                        | 29,148     | 12,991       | 13,141     | 6,778          | 4,347    | 2,242          | 2,791   | 2,694    |
| Aged 26 to 34    | 81,909                        | 34,867     | 18,364       | 18,965     | 5,915          | 3,444    | 3,112          | 1,152   | 2,466    |
| Aged 35 to 44    | 64,215                        | 27,156     | 14,003       | 14,124     | 3,731          | 4,757    | 3,246          | 2,611   | 2,478    |
| Aged 45 to 54    | 66,100                        | 25,660     | 15,047       | 11,105     | 2,009          | 8,228    | 4,826          | ***     | 5,658    |
| Aged 55 or older | 74,247                        | 30,878     | 17,585       | 9,014      | ***            | 12,984   | 4,702          | 1,802   | 6,628    |

\* ED visits where age is unknown have been excluded.

\*\* Propoxyphene and oxymorphone are included in the total; however, estimates for these drugs were suppressed in each age group due to low statistical precision. Because multiple drugs may be involved in each visit, estimates of visits by drug may add to more than the total.

\*\*\* Low precision; no estimate reported.

Source: Center for Behavioral Health Statistics and Quality, SAMHSA, Drug Abuse Warning Network (DAWN), 2011.

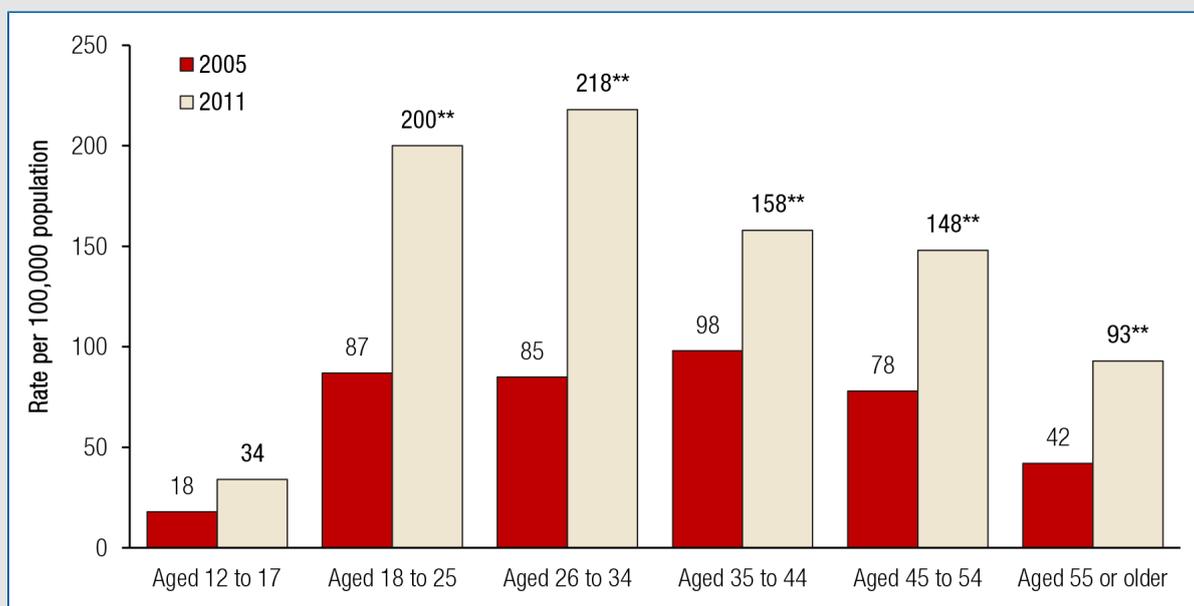
## COMPARISON OF AGE GROUPS

The rates and trends in narcotic pain reliever-related ED visits involving nonmedical use varied across age groups (Figure 6). Age groups can be compared using rates, which take into account the size of the age group within the population as well as the number of ED visits.

In 2011, the rate of narcotic pain reliever-related ED visits involving nonmedical use for patients aged 26 to 34 (218 per 100,000 population) was higher than the rate for patients aged 35 to 44 (158 visits per 100,000) and higher than the rate for those aged 45 to 54 (148 visits per 100,000) (Figure 6). Also, the rates for those aged 12 to 17 (34 visits per 100,000) and those aged 55 or older (93 visits per 100,000) were statistically lower than the rates for the other age groups. The rates for adults aged 18 to 25 (200 visits per 100,000), aged 35 to 44 (158 visits per 100,000) and aged 45 to 54 (148 visits per 100,000) were not statistically different from each other.

From 2005 to 2011, all age groups experienced increases in the rate of narcotic pain reliever-related ED visits involving nonmedical use, except for adolescents aged 12 to 17 (Figure 6). The rate increased 157 percent for patients aged 26 to 34 (from 85 to 218 visits per 100,000 population), followed by a 130 percent increase for patients aged 18 to 25 (from 87 to 200 visits per 100,000) and a 121 percent increase for patients aged 55 or older (from 42 to 93 visits per 100,000). Rates increased 90 percent for patients aged 45 to 54 (from 78 to 148 visits per 100,000) and 61 percent for patients aged 35 to 44 (from 98 to 158 visits per 100,000).

**Figure 6. Emergency department (ED) visits involving nonmedical use of narcotic pain relievers per 100,000 population, by age group\*: 2005 and 2011**



\* ED visits where age is unknown have been excluded.

\*\* The difference between the number of visits in 2005 and 2011 is significant at the .05 level.

Source: Center for Behavioral Health Statistics and Quality, SAMHSA, Drug Abuse Warning Network (DAWN), 2011.

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## SPECIFIC NARCOTIC PAIN RELIEVERS, BY AGE GROUP

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For oxycodone-related ED visits involving nonmedical use, the rate for adults aged 26 to 34 (93 visits per 100,000 population) was higher than the rates for all other age groups, except for those aged 18 to 25 (82 visits per 100,000) (Figure 7). Likewise, the rate for young adults aged 18 to 25 was higher than the rates for adolescents aged 12 to 17 (14 visits per 100,000) and older patients aged 45 to 54 (57 visits per 100,000) or 55 or older (39 visits per 100,000).

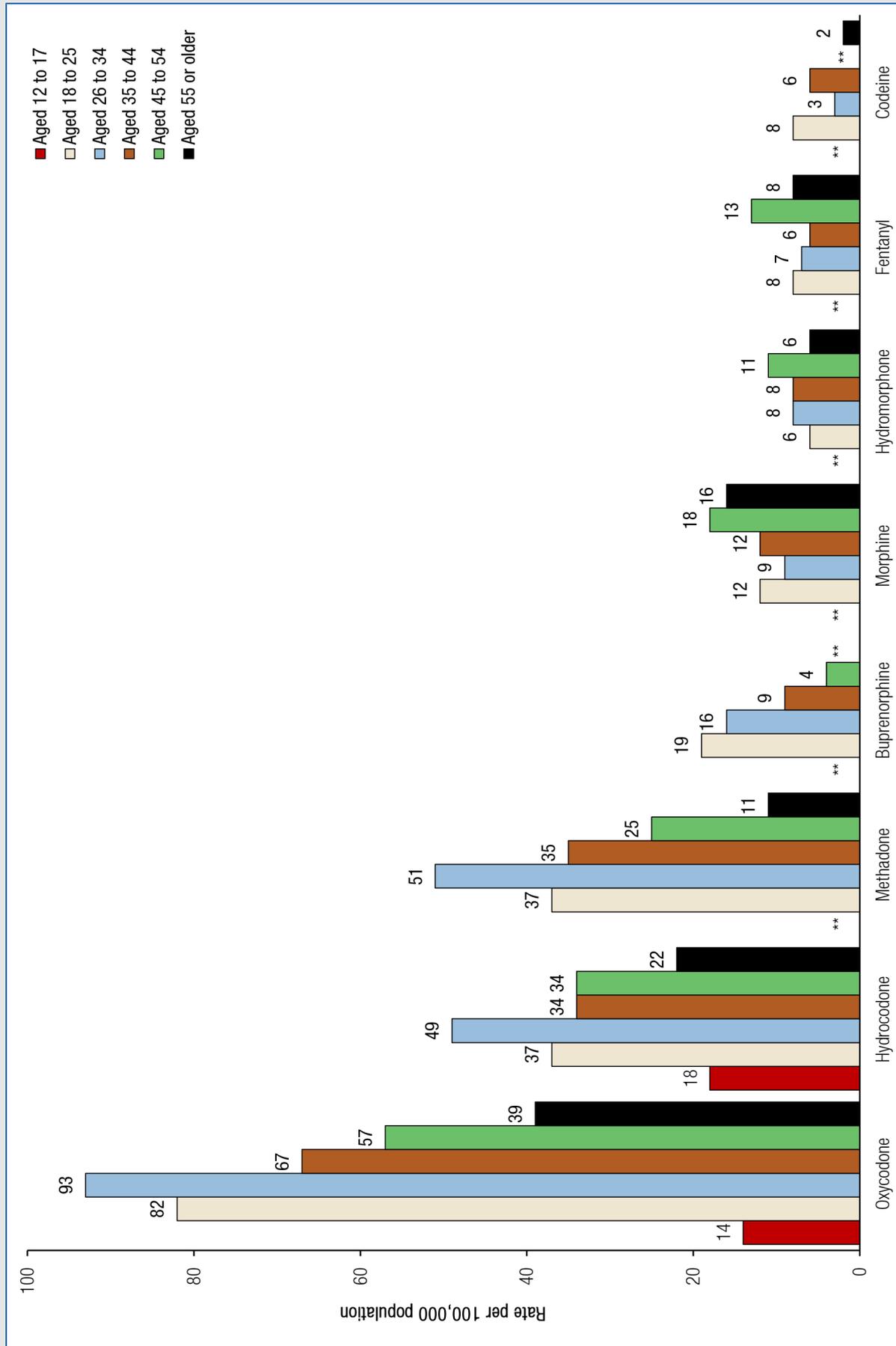
For hydrocodone-related visits involving nonmedical use, the rate for patients aged 26 to 34 (49 visits per 100,000 population) was higher than the rates for all other age groups (Figure 7). The rate for adolescents aged 12 to 17 (18 visits per 100,000) was lower than the rates for all older age groups, except for those aged 55 or older (22 visits per 100,000; difference not statistically significant from rate for ages 12 to 17).

For methadone-related visits involving nonmedical use, the rate for patients aged 26 to 34 (51 visits per 100,000 population) was higher than the rates for all other age groups (Figure 7). The rate for adults aged 55 or older (11 visits per 100,000) was lower than the rates for all younger age groups (the rate for adolescents aged 12 to 17 was suppressed due to low statistical precision).

For buprenorphine-related visits involving nonmedical use, the rate for adolescents aged 12 to 17 and for adults aged 55 or older was suppressed due to low statistical precision (Figure 7). Rates were higher for adults aged 26 to 34 (16 visits per 100,000 population) than for those aged 35 to 44 (9 visits per 100,000). Also, buprenorphine-related visits were lower for adults aged 45 to 54 (4 visits per 100,000) than for all younger age groups.

For morphine-related visits involving nonmedical use, the rate for adults aged 45 to 54 (18 visits per 100,000 population) and the rate for adults aged 55 or older (16 visits per 100,000) were both higher than the rate for adults aged 26 to 34 (9 visits per 100,000) (Figure 7). For hydromorphone-related visits, the rate for adults aged 45 to 54 (11 visits per 100,000) was higher than the rates for adults aged 18 to 25 and those aged 55 or older (both 6 visits per 100,000). For fentanyl-related visits, the rate for adults aged 45 to 54 (13 visits per 100,000) was higher than the rates for adults aged 26 to 34 (7 visits per 100,000) and those aged 35 to 44 (6 visits per 100,000). Codeine-related visits did not vary by age group.

**Figure 7. Rate per 100,000 population of narcotic pain reliever-related emergency department (ED) visits involving nonmedical use of pharmaceuticals, by age group\*: 2011**



\* ED visits where age is unknown have been excluded.

\*\* Low precision; no estimate reported.

Source: Center for Behavioral Health Statistics and Quality, SAMHSA, Drug Abuse Warning Network (DAWN), 2011.

## TRENDS FOR SPECIFIC NARCOTIC PAIN RELIEVERS, BY AGE GROUP

Trends for specific narcotic pain reliever involvement in nonmedical use visits varied by age group (Table 4). The rate of oxycodone-related visits increased from 2005 to 2011 among all age groups; however, the rate of hydrocodone-related visits only increased for patients aged 26 to 34 (from 23 to 49 visits per 100,000 population) and those aged 55 or older (from 10 to 22 visits per 100,000). Also, the rate of methadone-related visits increased only for patients aged 26 to 34 (from 22 to 51 visits per 100,000). Because buprenorphine-related visits were suppressed due to low precision in 2005, any change in buprenorphine visits could not be measured from 2005 to 2011.

Other rate increases from 2005 to 2011 for specific narcotic pain relievers involved in nonmedical use visits included morphine-related visits for patients aged 45 to 54 (from 7 to 18 visits per 100,000 population) and those aged 55 or older (from 7 to 16 visits per 100,000) (Table 4). Hydromorphone-related visits increased for four age groups: patients aged 18 to 25 (from 1 to 6 visits per 100,000), patients aged 35 to 44 (from 2 to 8 visits per 100,000), patients aged 45 to 54 (from 3 to 11 visits per 100,000), and patients aged 55 or older (from 1 to 6 visits per 100,000). Finally, fentanyl-related visits increased for patients aged 45 to 54 (from 5 to 13 visits per 100,000). Changes from 2005 to 2011 for codeine and propoxyphene-related visits were either nonsignificant for all age groups or suppressed due to low statistical precision.

**Table 4. Rate per 100,000 population of narcotic pain reliever-related emergency department (ED) visits involving nonmedical use of pharmaceuticals, by age group\*: 2005 vs. 2011**

|               | Aged 12 to 17 |      | Aged 18 to 25 |      | Aged 26 to 34 |      | Aged 35 to 44 |      | Aged 45 to 54 |      | Aged 55 or older |      |
|---------------|---------------|------|---------------|------|---------------|------|---------------|------|---------------|------|------------------|------|
|               | 2005          | 2011 | 2005          | 2011 | 2005          | 2011 | 2005          | 2011 | 2005          | 2011 | 2005             | 2011 |
| Oxycodone     | 5             | 14** | 32            | 82** | 27            | 93** | 29            | 67** | 23            | 57** | 14               | 39** |
| Hydrocodone   | 8             | 18   | 25            | 37   | 23            | 49** | 29            | 34   | 21            | 34   | 10               | 22** |
| Methadone     | ***           | ***  | 23            | 37   | 22            | 51** | 28            | 35   | 23            | 25   | 7                | 11   |
| Buprenorphine | ***           | ***  | ***           | 19   | ***           | 16   | ***           | 9    | ***           | 4    | ***              | ***  |
| Morphine      | ***           | ***  | 7             | 12   | 8             | 9    | 7             | 12   | 7             | 18** | 7                | 16** |
| Hydromorphone | ***           | ***  | 1             | 6**  | 3             | 8    | 2             | 8**  | 3             | 11** | 1                | 6**  |
| Codeine       | 2             | ***  | 3             | 8    | 2             | 3    | 4             | 6    | 3             | ***  | 1                | 2    |
| Fentanyl      | ***           | ***  | ***           | 8    | 5             | 7    | 4             | 6    | 5             | 13** | 6                | 8    |
| Propoxyphene  | ***           | ***  | 3             | ***  | 5             | ***  | 3             | ***  | 4             | ***  | 2                | ***  |

\* ED visits where age is unknown have been excluded.

\*\* The difference between 2005 and 2011 is statistically significant at the .05 level.

\*\*\* Low precision; no estimate reported.

Source: Center for Behavioral Health Statistics and Quality, SAMHSA, Drug Abuse Warning Network (DAWN), 2011.

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## DISCUSSION

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Over the 7-year period from 2005 to 2011, narcotic pain reliever-related ED visits involving nonmedical use of pharmaceuticals increased initially; however, no increases occurred between 2009 and 2011. Fluctuations in these trends are likely in part influenced by the number of prescriptions filled, which DAWN does not measure; for example, rates of prescribing specific narcotic pain medications may vary across the age groups. Regardless, the stabilizing trend may be an indication that policy changes and educational campaigns are having a long-term impact on public health outcomes. The National Survey on Drug Use and Health showed decreasing use of prescription pain relievers among adolescents and young adults but no improvements in past-year use among adults aged 26 or older from 2005 to 2011.<sup>19</sup>

Drug abuse prevention specialists are concerned that if nonmedical users of narcotic pain relievers find access to these prescription medications more difficult, they may turn to illicit use of heroin because the effects on the body are similar.<sup>18</sup> However, the more stable rates of narcotic pain reliever-related ED visits between 2009 and 2011 were not accompanied by a statistically significant increase in heroin-related ED visits (213,118 visits in 2009 and 258,482 visits in 2011) (data not shown). This trend should still be monitored carefully in the future to ensure that policies aimed at curbing misuse of narcotic pain relievers are effective in reducing drug abuse overall. It is also important to note that DAWN does not distinguish between nonmedical use by patients who exceed their prescribed dose to achieve better pain control and those who exceed their prescribed dose to experience the drugs' euphoric effects.

The specific narcotic pain relievers described in this report did not show increases in ED visits related to nonmedical use between 2009 and 2011, with the exception of buprenorphine. Buprenorphine use increased in outpatient settings during this time period among individuals seeking treatment for opioid addiction.<sup>20</sup> Other possible explanations for the increase in nonmedical use ED visits involving buprenorphine have been described in a previous short report.<sup>12</sup>

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. Discouraging certain drug combinations may also help diminish the need for emergency care because alcohol and medications such as pain relievers and anti-anxiety and insomnia medications can all work cumulatively on the brain to depress breathing and heart rate. Additionally, ongoing efforts are needed to keep doctors and other health care professionals informed about emerging drug problems and to help them understand the importance of exercising care in prescribing pain relievers and monitoring their patients or clients for signs of misuse.

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## END NOTES

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## SUGGESTED CITATION

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Crane, E. H. (2015). *The CBHSQ Report: Emergency Department Visits Involving Narcotic Pain Relievers*. Rockville, MD: Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality.

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## SUMMARY

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**Background:** Narcotic pain relievers can have serious health consequences when taken without medical supervision, in larger amounts than prescribed, or in combination with alcohol or other medications. This report highlights characteristics and trends from 2005 to 2011 for emergency department (ED) visits made as a result of the nonmedical use of narcotic pain relievers. **Method:** National estimates of ED visits involving the nonmedical use of pharmaceuticals, where narcotic pain relievers were involved in the visit, were analyzed using data from the 2005 to 2011 Drug Abuse Warning Network (DAWN). We examined trends for the primary narcotic pain relievers, other types of drugs that were combined with the narcotic pain relievers, and demographic characteristics of the patients. **Results:** ED visits that resulted from the nonmedical use of narcotic pain relievers increased 117 percent from 168,379 visits in 2005 to 366,181 visits in 2011. Recent trends, however, show that the number of visits was becoming more stable, with no change between 2008 and 2011. The highest rate of nonmedical use-related ED visits was for patients aged 26 to 34. **Conclusion:** Over the 7-year period from 2005 to 2011, ED visits as a result of the nonmedical use of narcotic pain relievers increased initially, but then leveled off between 2009 and 2011. This may indicate that policy changes and educational campaigns are working. Prevention and education campaigns should continue to focus on the dangers of sharing prescription medications and methods for safe storage and disposal of unused medication. Discouraging certain drug combinations may also help diminish the need for emergency care.

Keywords: opioid analgesics, opiates, nonmedical use, emergency department, DAWN, drug overdose

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## KEYWORDS

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2005, 2006, 2007, 2008, 2009, 2010, 2011, Adolescents as Population Group, Age Group, All US States Only, Buprenorphine, Codeine, Emergency Department Data, Emergency Department Treatment, Females, Fentanyl, Gender, Hydrocodone, Hydromorphone, Males, Mature Adults as Population Group, Methadone, Morphine, Multi-Year Trend, Nonmedical Use, Older Adults as Population Group, Opiate or Opioid, Oxycodone, Pain Relievers, Polydrug Use or Abuse, Prevention Professionals, Professional Care Providers, Public Health Professionals, Public Officials, Regulators, Researchers, Short Report, Young Adults as Population Group

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 monitored 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 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 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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