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## Sources of Prescription Opioid Pain Relievers by Frequency of Past-Year Nonmedical Use: United States, 2008-2011

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The health consequences of nonmedical use of prescription opioid pain relievers, such as oxycodone and hydrocodone, are significant.<sup>1</sup> The commonly cited statistic that most nonmedical users obtain these medications from friends or family for free<sup>2</sup> often serves as the basis for interventions focused on patients. This statistic, however, reflects sources among all nonmedical users, from those who used the drug once or twice to more frequent users. Recent research indicates that frequent nonmedical users are increasing in numbers and differ from infrequent users with respect to high-risk behaviors.<sup>3,4</sup> Little research has examined whether the source of opioid medication differs by frequency of nonmedical use. Such research can inform the development of appropriately targeted interventions.

### Methods |

We obtained our data from the National Survey on Drug Use and Health (NSDUH), an annual survey of the non-institutionalized, civilian population 12 years or older that provides estimates of substance use in the United States.<sup>2</sup> We combined NSDUH public use files<sup>5</sup> for the years 2008 through 2011 to improve the precision of estimates. Institutional review board approval and informed consent were not needed because this was a secondary analysis of data from a public use file.

Respondents were asked about classes of drugs prone to abuse. They were told that questions about pain relievers applied to prescription opioids and selected barbiturate combination products. *Nonmedical use* was defined as use without a prescription or use with a prescription for the feeling or the experience caused by the drug. Respondents reported the

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*Study concept and design:* Jones, Mack.

*Acquisition of data:* Jones.

*Analysis and interpretation of data:* All authors.

*Drafting of the manuscript:* Jones.

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frequency of nonmedical use, the type of opioid pain reliever used, and the source of the opioid used most recently.

We categorized the frequency of nonmedical use into the following 4 groups: 1 to 29, 30 to 99, 100 to 199, and 200 to 365 days. This categorization has been used previously to examine trends in the frequency of nonmedical use of pain relievers.<sup>4</sup> The sources of opioid pain relievers were categorized into the following 6 groups: given by a friend or a relative for free, prescribed by 1 or more physicians, stolen from a friend or a relative, bought from a friend or a relative, bought from a drug dealer or other stranger, and other source. Average annual estimates for 2008 through 2011 were produced using proprietary software for interpretation of the survey results (SPSS Complex Samples; IBM) to account for the NSDUH's sampling methods and weighting. We used 2-tailed *t* tests for statistical testing.

## Results |

We identified an average annual estimated 12 007 202 past-year nonmedical users 12 years or older; of these, 11 018 735 (91.8%) reported a source of an opioid pain reliever. Most nonmedical users were men, and more than half had annual incomes of less than \$50 000 (Table 1). Most nonmedical users obtained opioid pain relievers from friends and relatives for free (Table 2); however, the source varied significantly by frequency of nonmedical use. Opioid pain relievers were obtained from a friend or a relative for free with decreasing frequency (from 61.9% to 26.4%) as the reported days of nonmedical use increased from a range of 1 to 29 to a range of 200 to 365. Opioid pain relievers were obtained from other sources, including prescriptions from physicians and purchases from a friend or a relative or from a drug dealer or a stranger, with greater frequency as the reported days of non-medical use increased. Among nonmedical users reporting 200 to 365 days of use, opioid pain relievers were most often obtained via prescription from physicians (27.3%).

## Discussion |

The overall distribution of sources for opioids used for nonmedical purposes largely reflects the behavior of the lowest-use, lowest-risk group (1-29 days), which accounts for 63.9% of the sample. However, the highest-use, highest-risk group (200-365 days) reports different sources. This group is more likely than those with the lowest frequency of use to obtain opioids from a physician's prescription or from a drug dealer. This pattern is similar to that of patients in opioid treatment programs, who cite dealers and physicians as frequent sources.<sup>6</sup>

These results underscore the need for interventions targeting prescribing behaviors, in addition to those targeting medication sharing, selling, and diversion. The essential steps healthcare providers can take to curb this serious health problem include more judicious prescribing, use of prescription drug-monitoring programs, and screening patients for abuse risk before prescribing opioids.

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**Table 1.**

Characteristics of People 12 Years or Older Reporting Past-Year Nonmedical Use and Source of Most Recently Used Opioid Pain Reliever<sup>a</sup>

Demographic Characteristic	Users, No. (%) <sup>b</sup>	
	Unweighted	Weighted
Sex		
Male	7784 (51.7)	6 119 200 (55.5)
Female	7264 (48.3)	4 899 535 (44.5)
Age group, y		
12-17	3908 (26.0)	1 278 018 (11.6)
18-25	7958 (52.9)	3 537 032 (32.1)
26-34	1585 (10.5)	2 472 437 (22.4)
35-49	1257 (8.4)	2 404 759 (21.8)
50	340 (2.3)	1 326 489 (12.0)
Race		
White (non-Hispanic)	10420 (69.2)	8 104 148 (73.5)
Hispanic	1997 (13.3)	1 372 240 (12.5)
African American (non-Hispanic)	1380 (9.2)	979 761 (8.9)
Other	1251 (8.3)	562 586 (5.1)
Total annual family income, \$ <sup>c</sup>		
<20000	4196 (27.9)	2 616 194 (23.7)
20000-49999	5296 (35.2)	3 839 034 (34.8)
50000-74 999	2292 (15.2)	1 739 543 (15.8)
75 000	3264 (21.7)	2 823 965 (25.6)
Rural/urban status		
Large metropolitan county	6195 (41.2)	5 678 591 (51.5)
Small metropolitan county	5706 (37.9)	3 676 570 (33.4)
Nonmetropolitan county	3147 (20.9)	1 663 574 (15.1)
<b>Total</b>	<b>15 048 (100.0)</b>	<b>11 018 735 (100.0)</b>

<sup>a</sup>Obtained from the US National Survey on Drug Use and Health, 2008 through 2011.<sup>5</sup>

<sup>b</sup>Percentages have been rounded and may not sum to 100.

<sup>c</sup>Weighted numbers have been rounded.

**Table 2.** Source of Opioid Pain Reliever Most Recently Used by Frequency of Past-Year Nonmedical Use<sup>a</sup>

Source	Nonmedical Use, % (95% CI)				
	Any (n = 11 018 735)	1-29 (n = 7 037 205)	30-99 (n = 2 110 122)	100-199 (n = 1 103 312)	200-365 (n = 768 096)
Given by a friend or relative for free	54.4 (52.9-56.0)	61.9 (59.7-64.0) <sup>b</sup>	48.5 (45.6-51.5) <sup>b</sup>	37.7 (33.0-42.5) <sup>b</sup>	26.4 (20.9-32.9)
Prescribed by 1 physician	19.7 (18.4-21.1)	17.9 (16.2-19.7) <sup>b</sup>	19.5 (17.0-22.3) <sup>b</sup>	26.5 (22.2-31.4)	27.3 (22.3-32.9)
Stolen from a friend or relative	4.9 (4.4-5.3)	5.3 (4.7-6.0) <sup>b</sup>	4.6 (3.6-5.7) <sup>b</sup>	4.1 (2.7-6.0)	2.9 (2.1-4.1)
Bought from a friend or relative	11.3 (10.4-12.1)	7.6 (6.7-8.5) <sup>b</sup>	15.6 (13.4-18.0) <sup>b</sup>	18.3 (15.4-21.5)	23.2 (18.0-29.3)
Bought from a drug dealer or other stranger	4.2 (3.8-4.8)	2.1 (1.7-2.6) <sup>b</sup>	5.3 (4.1-6.9) <sup>b</sup>	8.2 (6.5-10.3) <sup>b</sup>	15.2 (12.0-19.1)
Other <sup>c</sup>	5.5 (4.7-6.3)	5.3 (4.3-6.4)	6.4 (5.4-7.7)	5.2 (3.5-7.8)	5.0 (2.9-8.4)

<sup>a</sup>Obtained from the US National Survey on Drug Use and Health, 2008 through 2011.<sup>5</sup>

<sup>b</sup>Estimate is statistically significantly different from that for highest-frequency users (200-365 days) ( $P < .05$ ).

<sup>c</sup>Includes written fake prescriptions and those opioids stolen from a physician's office, clinic, hospital, or pharmacy; purchased on the Internet; and obtained some other way.