

Drug Enforcement Administration Office of Diversion Control



NATIONAL FORENSIC LABORATORY INFORMATION SYSTEM

November 2006

NFLIS Special Report Controlled Substance Prescription Drugs, 2001–2005



Highlights

- From 2001 to 2005, an estimated 258,048 narcotic analgesic and 181,384 benzodiazepine drug items were analyzed by state and local forensic laboratories in the United States. Together, these drugs represented 6% of all drug items analyzed in 2005, up from 4% in 2001.
- Alprazolam (101,135 items), hydrocodone (89,554 items), and oxycodone (85,328 items) were the most commonly reported prescription drugs, accounting for nearly 63% of all narcotic analgesics and benzodiazepines reported.
- Among reported narcotic analgesics, hydrocodone increased nearly 125% between 2001 and 2005, steadily rising over the 5-year period. Oxycodone experienced a sharp increase from 2001 to 2004 but leveled off between 2004 and 2005, while methadone nearly tripled between 2001 and 2005.
- Among benzodiazepines, alprazolam increased over 75% between 2001 and 2005 and clonazepam nearly doubled, while diazepam decreased about 20%.
- Diazepam, alprazolam, morphine, and oxycodone had the highest ratios of drug items reported in NFLIS per prescriptions dispensed, suggesting a higher level of diversion. Oxycodone had a ratio nearly 3 times greater than hydrocodone, indicating a higher level of diversion given how often the two drugs are prescribed for medical purposes.

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DEA Message

The nonmedical use of controlled substance prescription drugs is a serious and growing problem in this country. Prescription drugs as a group represent the second most commonly abused substance behind only marijuana and ahead of such drugs as cocaine, heroin, and methamphetamine. A major challenge for the DEA and other drug control agencies is preventing the illegal diversion of prescription drugs while ensuring that the lawful acquisition of these drugs is not improperly disrupted.

Reducing the abuse of prescription drugs is one of the key objectives of the 2006 Synthetic Drug Control Strategy, developed by the Office of National Drug Control Policy in partnership with the Department of Justice and the Department of Health and Human Services. This strategy sets forth a number of ambitious goals, including reducing the abuse of prescription drugs by 15% by the end of 2008. Consistent with the President's National Drug Control Strategy, the Synthetic Drug Control Strategy outlines a three-pronged approach in the areas of prevention, treatment, and market disruption to achieve reductions in abuse and trafficking of synthetic drugs, including controlled prescription drugs.

The DEA's National Forensic Laboratory Information System (NFLIS) represents a systematic approach toward collecting data on seized drugs and analyzing trends and local patterns in the trafficking of these drugs, including prescription drugs. NFLIS supports the DEA's Office of Diversion Control in tracking prescription drug trafficking and abuse and in the DEA's efforts to develop effective solutions to these problems. The 2006 Synthetic Drug Control Strategy provides updates on 46 recommendations originally defined in the 2005 National Synthetic Drugs Action Plan. Among these recommendations, 45 have been completed, are in progress, or are ongoing.

NFLIS can support the Synthetic Drug Control Strategy's recommendations by providing timely and specific information on drugs seized by law enforcement and analyzed by federal, state, and local forensic laboratories. Specifically NFLIS can assist by:

- providing information on the type, extent, and trends of specific controlled substance prescription drugs seized by law enforcement entities, which can then develop an early alert and response mechanism to detect and respond to the emergence of new drugs and trends; and
- helping guide and focus enforcement and control efforts by providing data on afflicted geographic areas by furnishing Geographic Information System data on crime laboratory cases, including the type and prevalence of prescription drugs seized and analyzed by region, state, and county.

It is clear from the data in this special report that prescribed drugs are widely available through diversion and illicit trafficking. NFLIS is an information source that can allow us to better track the problem of the diversion of licit prescription drugs and support the development of plans and policies to alleviate the problem of prescription drug abuse.



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INTRODUCTION

The National Forensic Laboratory Information System (NFLIS) is a program sponsored by the Drug Enforcement Administration's (DEA's) Office of Diversion Control that systematically collects drug analysis results reported by federal, state, and local forensic laboratories. These laboratories analyze substances secured in law enforcement operations across the country and represent an important data resource in monitoring drug abuse and trafficking. A unique feature of NFLIS is that the information reported on identified drugs is scientifically verified through chemical analysis.

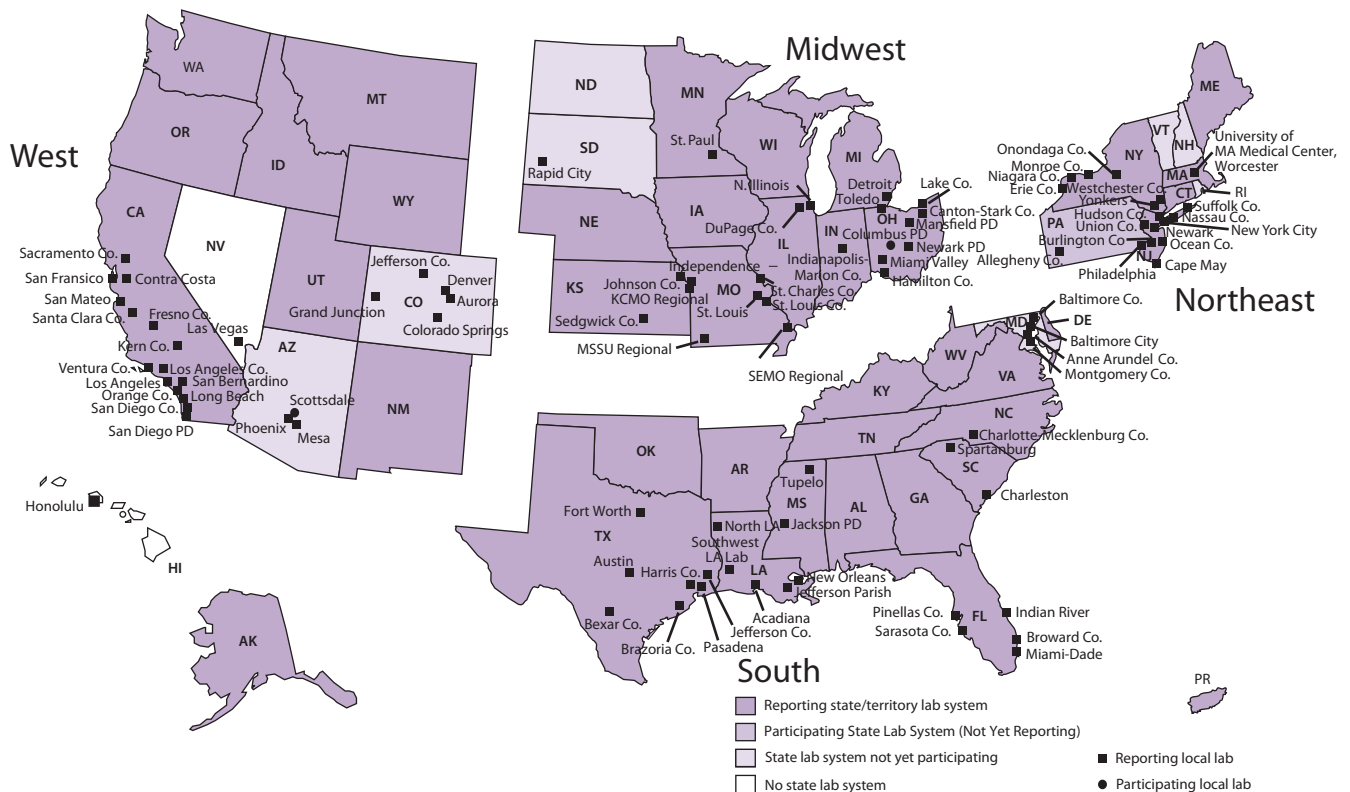
This report presents findings on two major categories of controlled substance prescription drugs: narcotic analgesics and benzodiazepines. Narcotic analgesics, derived from natural or synthetic opiates, are a category of pain medications for which abuse has increased sharply since the mid-1990s. An estimated 4.4 million people are current users of narcotic analgesics for nonmedical purposes (National Survey on Drug Use and Health [NSDUH], 2005¹). Benzodiazepines are prescribed to produce sedation, induce sleep, relieve anxiety and muscle spasms, and prevent seizures. Benzodiazepine abuse is most common among young adults. According to the 2004 NSDUH, lifetime use of benzodiazepines for nonmedical purposes was reported by 11% of adults aged 18 to 25 and 8% of adults aged 26 or older.

Prescription drugs can be diverted from legitimate markets in a number of ways. The most common methods of diversion involve doctor shopping and illegal sales by registrants. Other methods include illegal Internet purchases, prescription fraud, improper prescribing practices by physicians, and pharmacy theft. Internet purchases are an increasing problem especially for Schedule III, IV, and V drugs (Schedule III drugs include Vicodin; Schedule IV include Valium and Xanax; Schedule V drugs include codeine cough syrups).

This NFLIS Special Report focuses on controlled substance prescription drugs that are seized by law enforcement and analyzed by the nation's forensic laboratories. Findings are presented for narcotic analgesics and benzodiazepines reported to NFLIS between 2001 and 2005. The report includes data on prescription drugs reported by DEA laboratories from the System To Retrieve Information from Drug Evidence II (STRIDE). The IMS Health's National Prescription Audit database provides information on the extent to which the drugs described in this report are prescribed for legal medical purposes.

¹ Office of Applied Studies. (2005). *Results from the 2004 National Survey on Drug Use and Health: Detailed tables*. Rockville, MD: Substance Abuse and Mental Health Services Administration. [Available at <http://www.oas.samhsa.gov/WebOnly.htm#NHSDAtabs>]

NFLIS Participating Laboratories, by Census Region



NFLIS SPECIAL REPORT: CONTROLLED PRESCRIPTION DRUGS, 2001-2005

NATIONAL AND REGIONAL ESTIMATES

From 2001 to 2005, an estimated 258,048 narcotic analgesic and 181,384 benzodiazepine drug items were analyzed by state and local laboratories (Table 1). Together, narcotic analgesics and benzodiazepines represented nearly 5% of all drugs analyzed during this period.

Alprazolam (e.g., Xanax), hydrocodone (e.g., Vicodin), and oxydone (e.g., OxyContin) were the most commonly reported prescription drugs in NFLIS from 2001 to 2005, collectively representing nearly 63% of all narcotic analgesics and benzodiazepines. Among other prescription drugs presented in this report, 9% were identified as diazepam (e.g., Valium), 7% as clonazepam (e.g., Rivotril), 6% as methadone, 4% as codeine, 3% as morphine, 2% as propoxyphene (e.g., Darvon), and 2% as lorazepam (e.g., Ativan).

There were substantial differences in the types of prescription drugs reported across census regions. More than half of benzodiazepines in the South (62%) and Midwest (54%) were identified as alprazolam (Figure 1). In the Northeast, 47% of benzodiazepines were reported as alprazolam and 30% as clonazepam, while in the West 35% were reported as diazepam. Among narcotic analgesics, the highest percentage of oxydone was reported in the Northeast (49%), followed by the Midwest (32%) (Figure 2). The highest percentages of hydrocodone were reported in the South (43%) and West (37%). The highest percentage of methadone was reported in the Northeast (16%).

Table 1 CONTROLLED SUBSTANCE PRESCRIPTION DRUGS ANALYZED BY STATE AND LOCAL FORENSIC LABORATORIES

ESTIMATED NUMBER AND PERCENTAGE OF NARCOTIC ANALGESICS AND BENZODIAZEPINES, 2001–2005.

Drug	Total		2001		2002		2003		2004		2005	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Narcotic analgesics	258,048	58.72%	39,580	53.67%	49,245	56.15%	48,592	59.74%	57,341	61.65%	63,289	61.06%
Hydrocodone	89,554	20.38%	13,654	18.51%	16,838	19.20%	16,904	20.78%	18,610	20.01%	23,549	22.72%
Oxycodone	85,328	19.42%	12,996	17.62%	17,569	20.03%	16,520	20.31%	18,967	20.39%	19,275	18.60%
Methadone	24,998	5.69%	2,488	3.37%	3,842	4.38%	4,967	6.11%	6,399	6.88%	7,302	7.05%
Codeine	17,482	3.98%	3,571	4.84%	3,603	4.11%	2,757	3.39%	4,205	4.52%	3,346	3.23%
Morphine	13,482	3.07%	2,101	2.85%	2,400	2.74%	2,534	3.12%	2,828	3.04%	3,619	3.49%
Propoxyphene	10,944	2.49%	2,264	3.07%	2,486	2.84%	2,103	2.59%	2,122	2.28%	1,970	1.90%
Other narcotic analgesics	16,259	3.70%	2,506	3.40%	2,507	2.86%	2,808	3.45%	4,210	4.53%	4,229	4.08%
Benzodiazepines	181,384	41.28%	34,169	46.33%	38,452	43.85%	32,744	40.26%	35,663	38.35%	40,355	38.94%
Alprazolam	101,135	23.02%	17,924	24.30%	20,021	22.83%	17,738	21.81%	20,821	22.39%	24,631	23.77%
Diazepam	39,565	9.00%	8,801	11.93%	9,581	10.92%	7,375	9.07%	6,938	7.46%	6,871	6.63%
Clonazepam	29,340	6.68%	5,105	6.92%	6,340	7.23%	5,373	6.61%	5,798	6.23%	6,723	6.49%
Lorazepam	8,038	1.83%	1,526	2.07%	1,762	2.01%	1,705	2.10%	1,488	1.60%	1,557	1.50%
Other benzodiazepines	3,305	0.75%	813	1.10%	748	0.85%	553	0.68%	619	0.67%	573	0.55%
<i>Total prescription drugs</i>	439,431	100.00%	73,749	100.00%	87,696	100.00%	81,337	100.00%	93,004	100.00%	103,645	100.00%
<i>Total analyzed items</i>	8,851,963		1,830,348		1,821,719		1,715,325		1,735,300		1,749,271	
<i>% identified as prescription drugs</i>		4.96%		4.03%		4.81%		4.74%		5.36%		5.93%

Note: Percentages may not sum to 100% due to rounding.

Figure 1. Distribution of benzodiazepines within region, 2001–2005.

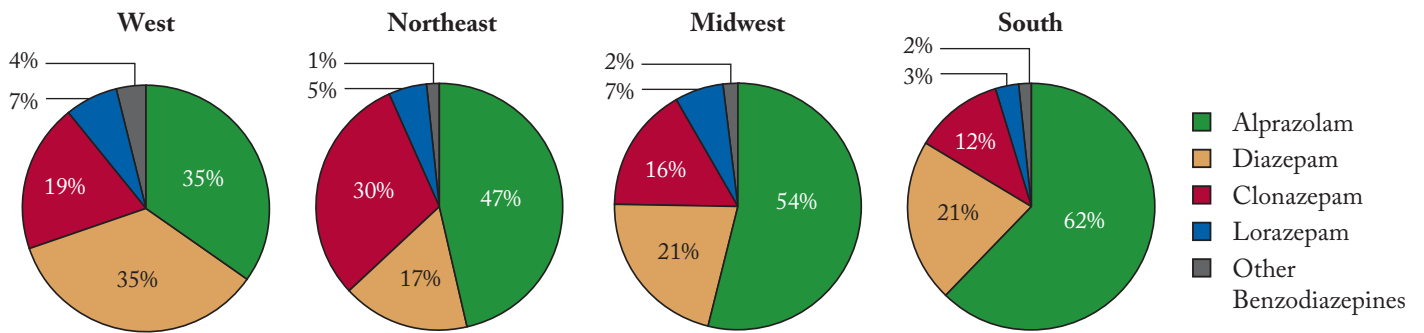
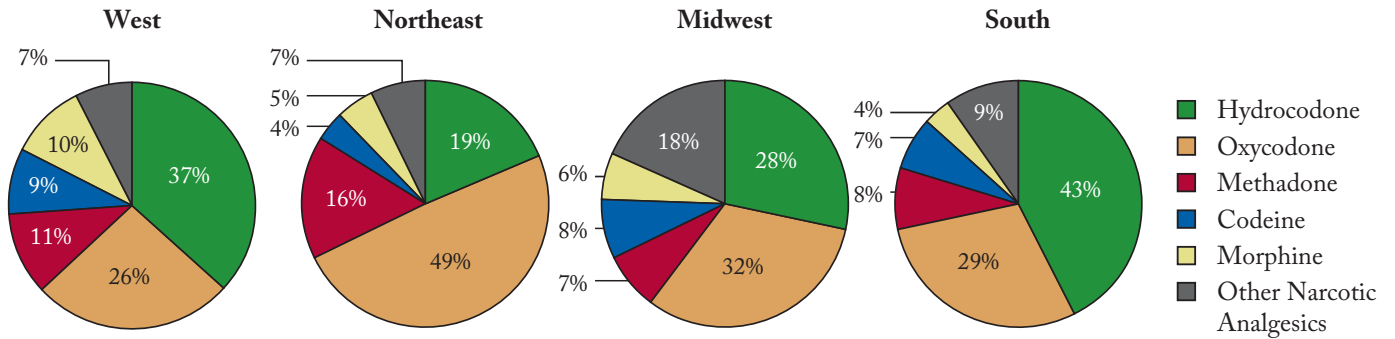


Figure 2. Distribution of narcotic analgesics within region, 2001–2005.



Note: Percentages may not sum to 100% due to rounding.



QUARTERLY TRENDS

National Trends

This section describes national quarterly trends for the estimated number of narcotic analgesics and benzodiazepines analyzed by state and local laboratories between 2001 and 2005. Among benzodiazepines, alprazolam increased more than 75% over the 5-year period from 3,616 items during the first quarter of 2001 to 6,418 items during the fourth quarter of 2005 (Figure 3). Clonazepam increased nearly 100% over this period, while diazepam decreased about 20%. Among narcotic analgesics, hydrocodone increased about 125%, steadily rising over the 5-year period (Figure 4). In comparison, oxycodone experienced a 43% increase from 2001 to 2005, but has leveled off since 2004. Among other narcotic analgesics, the most notable is methadone, which nearly tripled between 2001 and 2005 (Figure 5).



Figure 3. Benzodiazepines by quarter, 2001–2005.

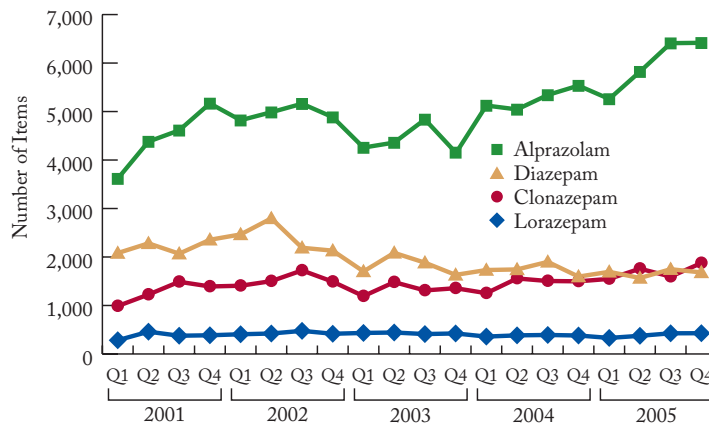


Figure 4. Oxycodone and hydrocodone by quarter, 2001–2005.

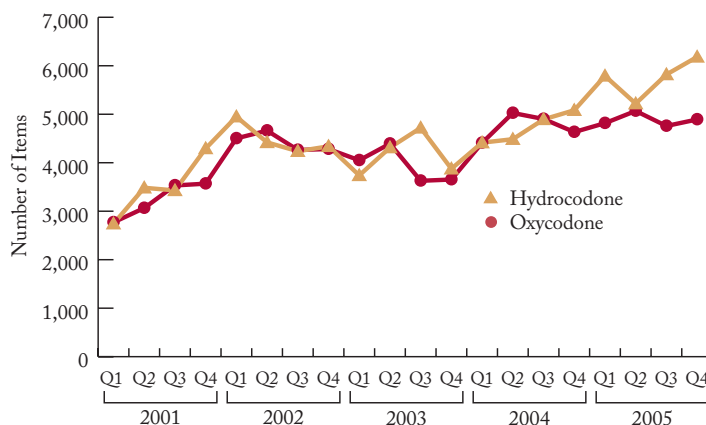
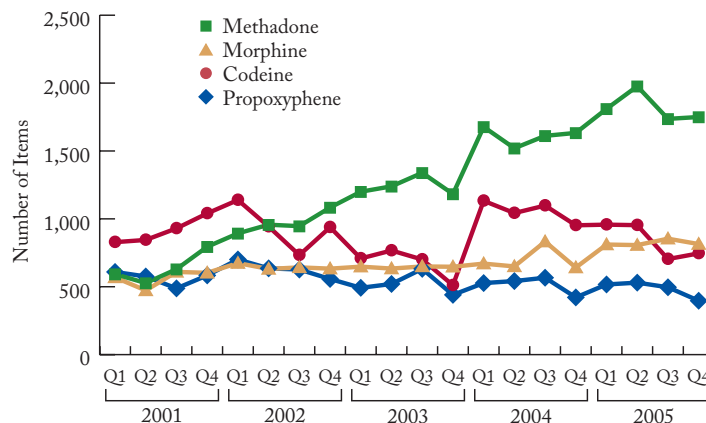


Figure 5. Other selected narcotic analgesics by quarter, 2001–2005.



Regional Trends Adjusted for Population

This section presents regional trends per 100,000 persons aged 15 or older for alprazolam, hydrocodone, and oxycodone. In 2005, alprazolam was reported in the South (5.2 items per 100,000) at a rate twice that reported in the Midwest (2.6 per 100,000) and Northeast (2.2 per 100,000). Between 2001 and 2005, alprazolam increased significantly in the Midwest, Northeast, and South (Figure 6). The largest increase occurred in the Midwest, where alprazolam more than doubled from 0.9 to 2.6 per 100,000 (from 471 items to 1,300 items). Alprazolam increased 68% in the Northeast and 61% in the South.

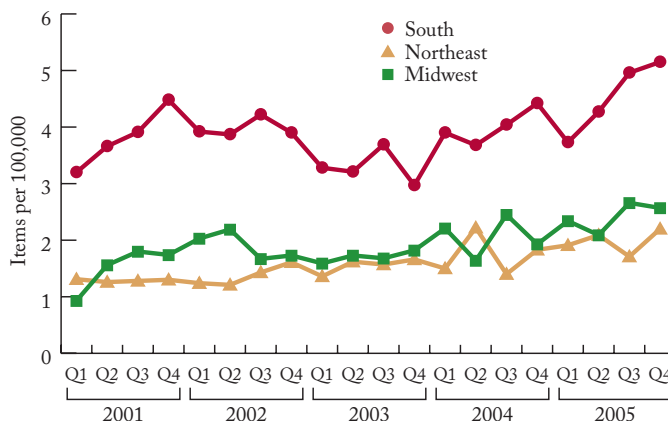
Both hydrocodone and oxycodone have seen sharp increases in certain census regions. From 2001 to 2005, hydrocodone increased significantly in the Midwest, Northeast, and South (Figure 7). In the Northeast, the rate of hydrocodone reports was 4 times higher in the fourth quarter of 2005 compared with the first quarter of 2001, increasing from 0.3 items to 1.2 items per 100,000 (from 131 items to 532 items). Rates also more than tripled in the Midwest (from 0.7 to 2.2 items per 100,000) and more than doubled in the South (from 2.3 to 5.0 items per 100,000). Reports of oxycodone increased significantly in the Midwest, West, and Northeast (Figure 8). In the Northeast, oxycodone reports doubled from 1.5 to 3.0 per 100,000 (from 636 items to 1,308 items). In the Midwest, reports of oxycodone increased from 1.3 to 2.3 per 100,000 (from 649 items to 1,143 items).

Oxycodone



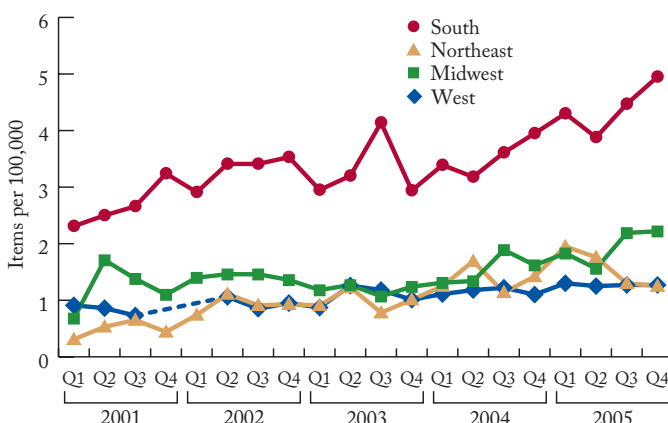
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Figure 6. Alprazolam by region, 2001–2005.*



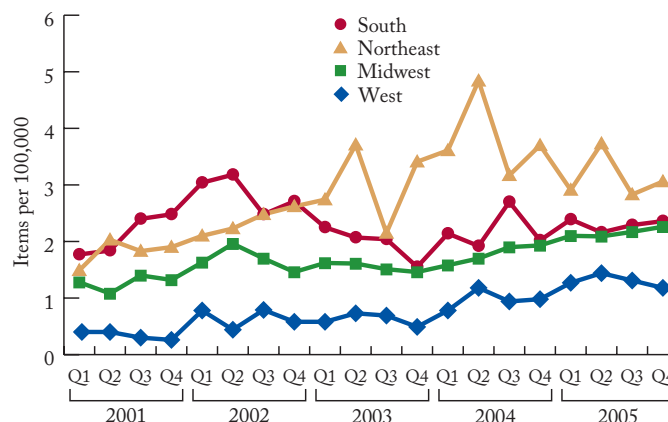
*The absence of a trend line in the West implies unstable estimates due to few laboratories in the region reporting this specific drug.

Figure 7. Hydrocodone by region, 2001–2005.*



*A dashed line implies unstable estimates due to few laboratories in the region reporting this specific drug for these quarters.

Figure 8. Oxycodone by region, 2001–2005.



PRESCRIPTION DRUGS IN NFLIS, BY STATE

Similar to other illicit drugs, the abuse and trafficking of controlled prescription drugs fluctuate across the country. As shown in data from NFLIS, forensic laboratory reporting of both narcotic analgesics and benzodiazepines varies by region and by state.

Nationally in 2005, state and local laboratories reported about 4% of their overall drug caseloads as narcotic analgesics compared with 2% in 2001. In 2001, there were 2 states reporting 7% or more of their drug caseloads as narcotic analgesics, West Virginia at 15% and Maine at 11% (Figure 9), although there were also fewer states participating in NFLIS in 2001. In 2005, there were 6 states reporting 7% or more of their drug caseloads as narcotic analgesics, 4 of which were in the South (Figure 10). These included Kentucky (20%), West Virginia (10%), Tennessee (8%), and Louisiana (7%). In the Northeast, Maine reported 8% of its overall caseload as narcotic analgesics. Of States reporting levels between 5% and 7% in 2005, 4 were in the South (Mississippi, Virginia, Alabama,

Oklahoma), 2 were in the Midwest (Michigan and Ohio), 2 in the West (Utah and Montana), and 1 in the Northeast (Massachusetts).

Figures 11 and 12 show state-level reporting of benzodiazepines in 2001 and 2005. Nationally, state and local laboratories reported about 1.2% of their caseloads in 2005 as benzodiazepines compared with about 0.6% in 2001. In 2001, 3 states reported 4% or more of their drug caseloads as benzodiazepines, all of which were in the South (South Carolina at 5%, Alabama at 4%, and Texas at 4%). In 2005, 9 states reported 4% or more of their drug caseloads as benzodiazepines, 7 of which were in the South: Kentucky (7%), Oklahoma (6%), Texas (6%), Tennessee (6%), Louisiana (6%), South Carolina (4%), and Alabama (4%). In the West, Nevada reported 8% of its overall caseload as benzodiazepines, and Missouri in the Midwest reported 4%.

Figure 9. Percentage of drugs reported as narcotic analgesics per state, 2001.

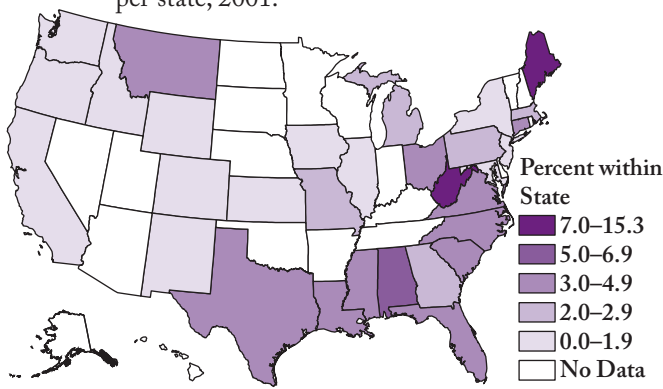


Figure 10. Percentage of drugs reported as narcotic analgesics per state, 2005.

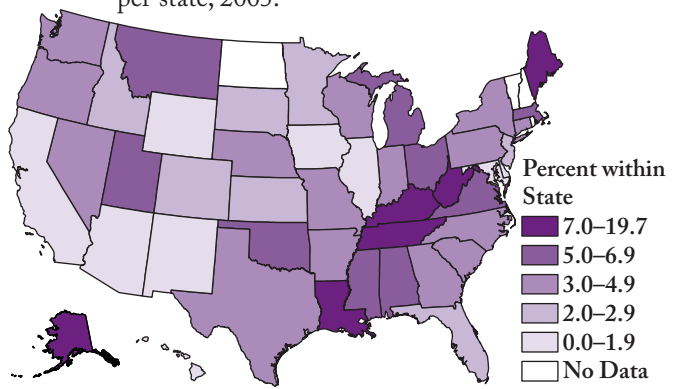


Figure 11. Percentage of drugs reported as benzodiazepines per state, 2001.

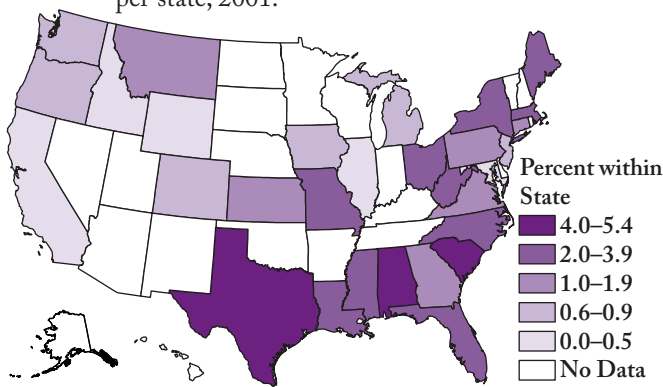
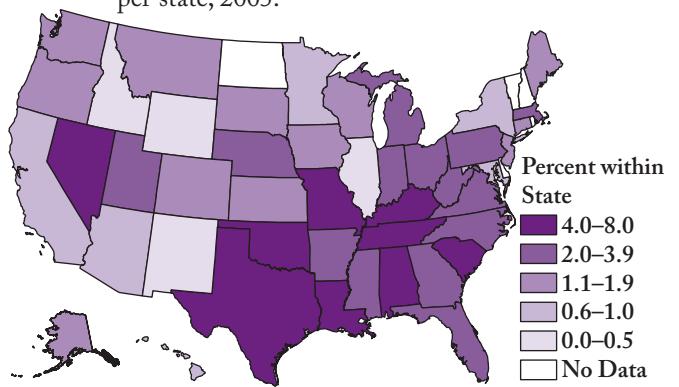


Figure 12. Percentage of drugs reported as benzodiazepines per state, 2005.



DIVERSION OF PRESCRIPTION DRUGS

Narcotic analgesics and benzodiazepines are diverted into illicit markets through doctor shopping, prescription forgery, pharmacy theft, and various other methods. NFLIS can provide an approximation of the extent to which pharmaceuticals are diverted by comparing prescription data with forensic laboratory data on drugs obtained by law enforcement. Prescription data describe how often specific drugs have been legally dispensed for medical purposes. Table 2 presents the estimated number of drug items identified in NFLIS per 10,000 prescriptions dispensed for selected pharmaceuticals for 2001 through 2005.

Diazepam, alprazolam, morphine, and oxycodone had the highest seizure-to-prescription ratios, indicating a higher level of diversion given availability. In comparison, lorazepam had the lowest ratio, followed by propoxyphene, codeine, and hydrocodone, indicating that these drugs are diverted less frequently given how often they are prescribed for medical purposes. It should be noted that methadone was excluded from the table because methadone dispensed in treatment programs is not included in the prescription data.



Table 2 DRUG ITEMS IDENTIFIED IN NFLIS PER 10,000 PRESCRIPTIONS DISPENSED, 2001–2005

Drug	Drug items identified in NFLIS	Prescriptions dispensed*	Drug items identified in NFLIS per 10,000 prescriptions dispensed
Diazepam	39,565	65,299,000	6.06
Alprazolam	101,135	169,691,000	5.96
Morphine	13,482	23,264,000	5.80
Oxycodone	85,328	161,255,000	5.29
Clonazepam	29,340	82,534,000	3.55
Hydrocodone	89,554	550,831,000	1.63
Codeine	17,482	165,512,000	1.06
Propoxyphene	10,944	140,550,000	0.78
Lorazepam	8,038	112,318,000	0.72

*Prescription data are from IMS Health's National Prescription Audit database (2001–2005).

Methadone was excluded from the table because the IMS prescription data do not include methadone dispensed in treatment programs.

PRESCRIPTION DRUGS REPORTED IN STRIDE

The DEA's System To Retrieve Information from Drug Evidence II (STRIDE) collects results of substance evidence analyzed at DEA laboratories across the country. STRIDE includes results for drug cases submitted by the DEA, other federal law enforcement agencies, and some local police agencies. Although STRIDE captures both domestic and international drug cases, the following data only reflect results for drugs obtained in the United States. From 2001 to 2005, a total of 5,396 narcotic analgesics and 3,672 benzodiazepines

were reported in STRIDE, together representing about 3% of all drug items reported in STRIDE (Table 3). Overall, 23% of these controlled pharmaceuticals were reported as hydrocodone, 18% as oxycodone, 18% as alprazolam, and 12% as diazepam. During the 5-year period, alprazolam increased from 275 in 2001 to 422 in 2005 and hydrocodone increased from 291 to 591, while oxycodone declined from 480 to 316. Diazepam remained relatively unchanged during the period.

TABLE 3. CONTROLLED SUBSTANCE PRESCRIPTION DRUGS REPORTED IN STRIDE, 2001–2005

Drug	Total		2001		2002		2003		2004		2005	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Narcotic analgesics	5,936	61.79%	1,150	63.89%	1,003	59.14%	1,166	60.01%	1,257	63.20%	1,358	62.41%
Hydrocodone	2,208	22.98%	291	16.17%	344	20.28%	485	24.96%	496	24.94%	591	27.16%
Oxycodone	1,741	18.12%	480	26.67%	308	18.16%	291	14.98%	345	17.35%	316	14.52%
Methadone	557	5.80%	84	4.67%	97	5.72%	118	6.07%	151	7.59%	107	4.92%
Codeine	495	5.15%	81	4.50%	78	4.60%	97	4.99%	108	5.43%	131	6.02%
Propoxyphene	257	2.68%	71	3.94%	58	3.42%	45	2.32%	32	1.61%	51	2.34%
Morphine	188	1.96%	33	1.83%	38	2.24%	42	2.16%	28	1.41%	47	2.16%
Other narcotic analgesics	490	5.10%	110	6.11%	80	4.72%	88	4.53%	97	4.88%	115	5.28%
Benzodiazepines	3,672	38.21%	650	36.11%	693	40.86%	777	39.99%	732	36.80%	818	37.59%
Alprazolam	1,743	18.14%	275	15.28%	314	18.51%	350	18.01%	381	19.16%	422	19.39%
Diazepam	1,182	12.30%	244	13.56%	244	14.39%	216	11.12%	232	11.66%	245	11.26%
Clonazepam	370	3.85%	56	3.11%	62	3.66%	105	5.40%	65	3.27%	82	3.77%
Lorazepam	190	1.98%	34	1.89%	35	2.06%	45	2.32%	32	1.61%	44	2.02%
Other benzodiazepines	187	1.95%	41	2.28%	38	2.24%	61	3.14%	22	1.11%	25	1.15%
<i>Total prescription drugs</i>	9,608	100.00%	1,800	100.00%	1,696	100.00%	1,943	100.00%	1,989	100.00%	2,176	100.00%
<i>Total analyzed items</i>	296,118		63,829		62,809		57,850		54,547		57,083	
<i>% identified as prescription drugs</i>		3.24%		2.82%		2.70%		3.36%		3.65%		3.81%

Note: Percentages may not sum to 100% due to rounding.

Acknowledgments

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