

Drug Enforcement Administration
Office of Diversion Control



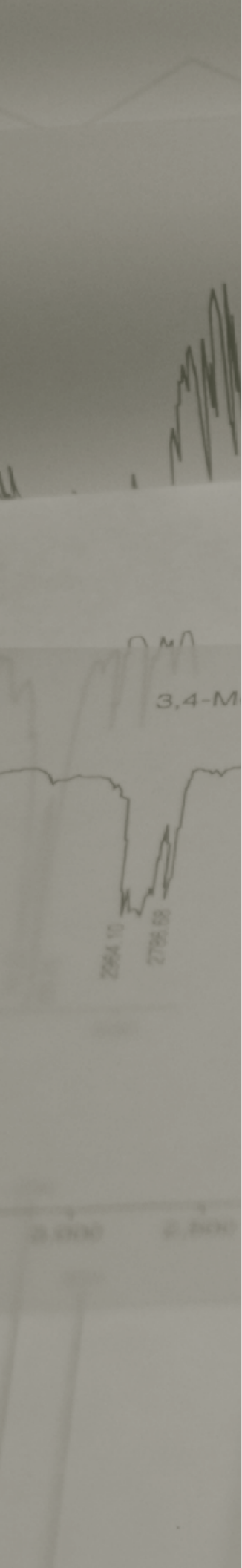
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YEAR 2008 ANNUAL REPORT

NFLIS

NATIONAL FORENSIC LABORATORY INFORMATION SYSTEM





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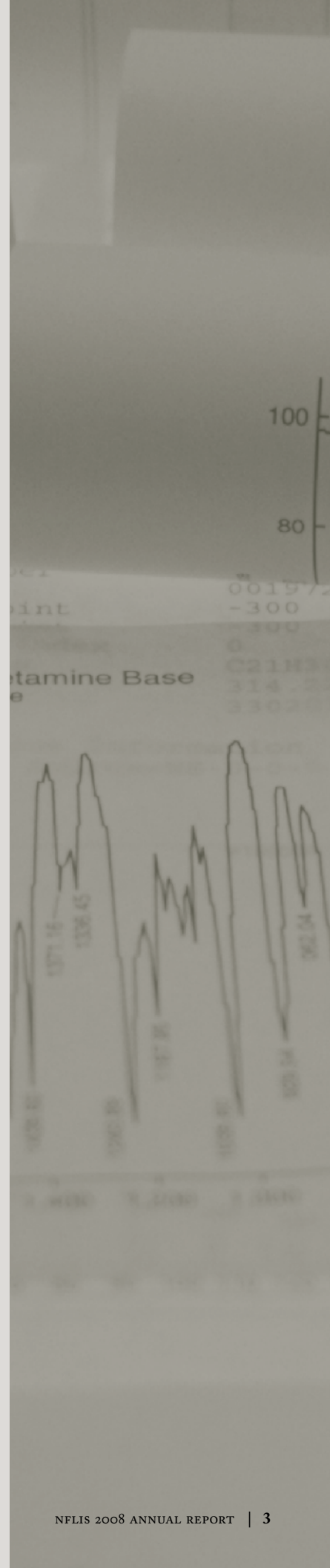
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Foreword

The Drug Enforcement Administration (DEA) Office of Diversion Control is pleased to present the *National Forensic Laboratory Information System (NFLIS) Year 2008 Annual Report*. Through a partnership that includes 278 federal, state, and local forensic laboratories, the information collected through NFLIS supports DEA's mission to enforce the controlled substances laws and regulations of the United States and serves as an important resource for state and local drug control agencies.

The *NFLIS 2008 Annual Report* presents national and regional findings on drug cases analyzed during the past year, including drug seizure information by location. The *NFLIS 2008 Annual Report* includes several key findings:

- State and local laboratories in the United States analyzed 1.77 million drug items in 2008. This represents a 2% decrease when compared with the 1.81 million drug items analyzed in 2007. Cannabis/THC was the most frequently identified drug (592,053 items) in 2008, followed by cocaine (534,324 items), methamphetamine (138,551 items), and heroin (103,326 items). In 2008, BZP replaced ketamine among the 25 most frequently identified drugs.
- Nationally, reports of alprazolam, hydrocodone, oxycodone, clonazepam, and morphine experienced significant increases from 2001 through 2008. Alprazolam reports almost doubled during this time, while reports of hydrocodone increased 201%, morphine increased 197%, oxycodone increased 178%, and clonazepam increased 70%.
- Methamphetamine reports decreased 44% from 2005 through 2008, from 247,288 to 138,551 items. Reports of heroin decreased from 2001 through 2008, but increased 11% between 2007 and 2008.
- Regionally, reports of hydrocodone, oxycodone, and morphine increased significantly in all census regions from 2001 through 2008. Reports of alprazolam and clonazepam increased significantly in the Midwest, South, and Northeast.
- Cocaine reporting increased significantly from 2001 through 2008 in the Northeast, but decreased significantly in the Midwest. Methamphetamine reporting significantly increased in the Northeast and Midwest, but significantly decreased in the West during this time. However, in the Northeast, methamphetamine reporting decreased 27% between 2007 and 2008. From 2001 through 2008, heroin decreased significantly in the Northeast and South. Between 2007 and 2008, however, heroin reports increased 16% in the Northeast. Reports of MDMA increased significantly in the Midwest and West, but decreased 66% in the Northeast.

As can be seen from these results, NFLIS provides a unique source of information on the nation's drug problem by providing detailed and timely information on drug evidence secured in law enforcement operations across the country. DEA would like to thank the laboratories that have joined NFLIS and encourage those laboratories that are not currently participating in NFLIS to contact us about joining this important program.

Thank you again for your ongoing support.



Joseph T. Rannazzisi
Deputy Assistant Administrator
Office of Diversion Control

DEA UPDATE

“SPICE” —Request for Information

Smokable herbal blends marketed as “legal marijuana” have become increasingly popular. In the United States, these products can be purchased over the Internet from domestic or overseas-based businesses. The products purportedly consist of blends of exotic herbs and other plant materials that when smoked allegedly produce euphoria. One particular brand of “herbal incense” that has become increasingly popular is manufactured under the brand-name “Spice.”

Analyzed “Spice” samples may be found to contain the following:

- **HU-210** [(6aR,10aR)-9-(hydroxymethyl)-6,6-dimethyl-3-(2-methyloctan-2-yl)-6a,7,10,10a-tetrahydrobenzo[c]chromen-1-ol]
- **HU-211** [(6aS,10aS)-9-(hydroxymethyl)-6,6-dimethyl-3-(2-methyloctan-2-yl)-6a,7,10,10a-tetrahydrobenzo[c]chromen-1-ol]
- **CP 47,497** [2-[(1R,3S)-3-hydroxycyclohexyl]-5-(2-methyloctan-2-yl)phenol] and its homologues
- **JWH-018** [1-Pentyl-3-(1-naphthoyl)indole]
- **JWH-073** [1-Butyl-3-(1-naphthoyl)indole]

HU-210 is structurally and pharmacologically similar to Δ^9 -tetrahydrocannabinol (Δ^9 -THC), the active ingredient of marijuana. It is a Schedule I controlled substance in the United States.

In mice, behavioral pharmacology studies reveal that HU-210 decreases overall activity, produces analgesia, decreases body temperature, and produces catalepsy. Together, these four effects are used by scientists to predict Δ^9 -THC-like psychoactivity in humans. HU-210 abusers report the drug is 100 to 800 times more potent than THC.

HU-211 is the enantiomer of HU-210 (i.e., its molecular structure has a nonsuperimposable mirror-image relationship to HU-210). The only distinguishing difference is the opposite orientation of two hydrogen atoms at positions 6a and 10a. Although it is categorized as a THC substance and structurally similar to Δ^9 -THC, HU-211 is believed to have no Δ^9 -THC-like activity in humans. HU-211 is currently not controlled under the Controlled Substances Act (CSA) (see <http://www.usdoj.gov/dea/pubs/csa.html>).

CP 47,497 (and its homologues), **JWH-018**, and **JWH-073** are synthetic cannabinoid agonists without the classical cannabinoid chemical structure. They are used in scientific research as tools to study the cannabinoid system. Although these substances are likely to have similar effects in humans as Δ^9 -THC, CP 47,497 (and its homologues), JWH-018, and JWH-073 are not currently controlled under the CSA.

A recent law enforcement bulletin reported that “Spice” has been banned by some U.S. domestic and overseas military commands, where the potential for its abuse has been recognized. The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) issued a statement of concern over “Spice” to its member states. In addition, the EMCDDA reported that Austria has banned the substance and Germany declared five “Spice” cannabinoids controlled substances under their Narcotic Drug Law.

The Drug and Chemical Evaluation Section (ODE) of the DEA Office of Diversion Control continues to gather information on abuse, diversion, and trafficking of “Spice” and its purported constituents. ODE would appreciate receiving any information related to federal, state, or local law enforcement encounters, drug identification, and abuse of HU-210; HU-211; CP 47,497; JWH-018; or JWH-073.

Contact Us

DEA Headquarters

Attn: Drug and Chemical Evaluation Section (ODE)

8701 Morrisette Drive

Springfield, VA 22152

Phone: 202-307-7183

Fax: 202-353-1263

E-mail: ODE@usdoj.gov



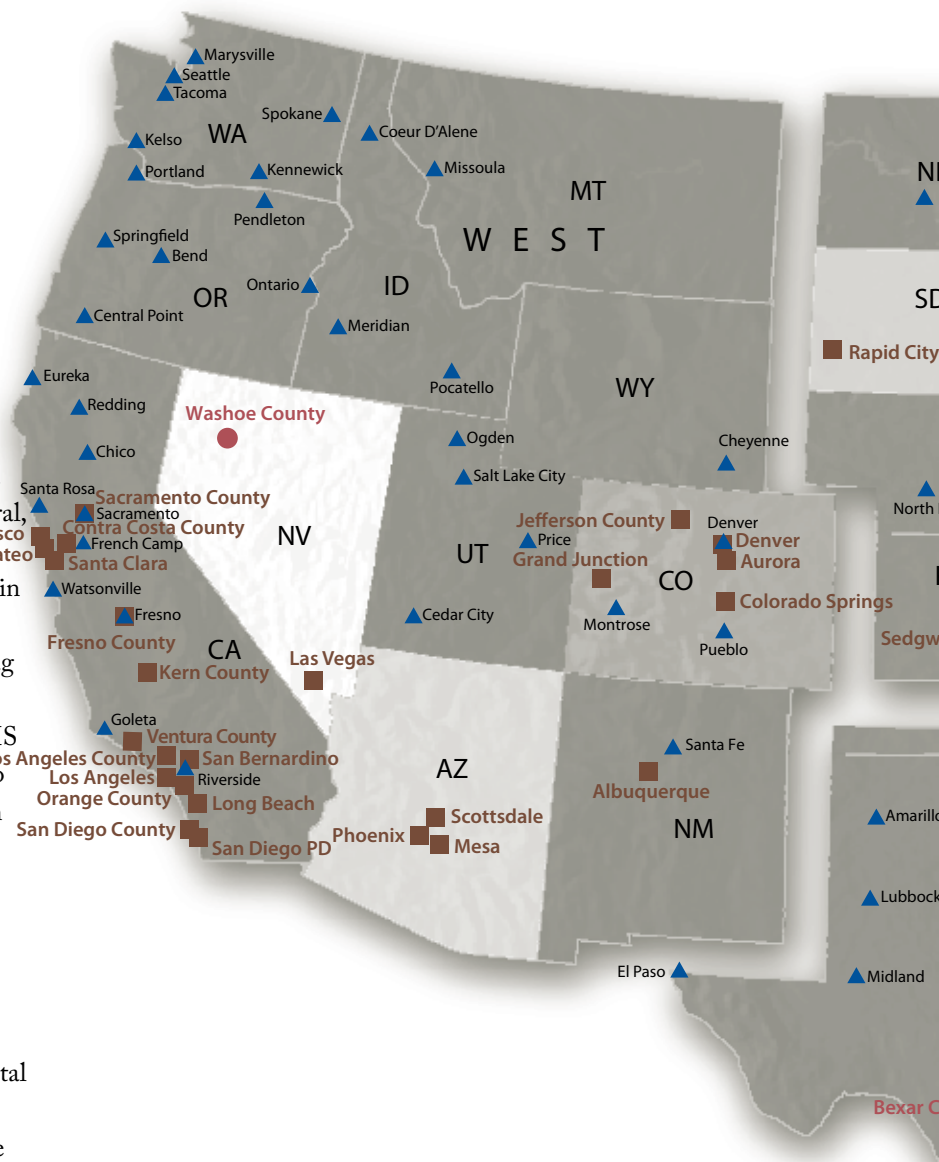
INTRODUCTION

The National Forensic Laboratory Information System (NFLIS) is a program of the Drug Enforcement Administration (DEA), Office of Diversion Control, that systematically collects drug identification results and associated information from drug cases analyzed by federal, state, and local forensic laboratories. These laboratories analyze controlled and noncontrolled substances secured in law enforcement operations across the country. NFLIS represents an important resource in monitoring illicit drug abuse and trafficking, including the diversion of legally manufactured pharmaceuticals into illegal markets. NFLIS data are used to support drug scheduling decisions and to inform drug policy and drug enforcement initiatives both nationally and in local communities around the country.

NFLIS is a comprehensive information system that currently includes data from forensic laboratories that handle 88% of the nation's estimated 1.2 million annual state and local drug analysis cases. As of April 2009, NFLIS included 46 state systems, 95 local or municipal laboratories, and 1 territorial laboratory, representing a total of 278 individual laboratories. The NFLIS database also includes federal data from the DEA's System To Retrieve Information from Drug Evidence II (STRIDE), which reflects the results of drug evidence analyzed at DEA laboratories across the country.

This 2008 Annual Report presents the results of drug cases analyzed by forensic laboratories between January 1, 2008, and December 31, 2008. Section 1 presents national and regional estimates for the 25 most frequently identified drugs, as well as national and regional trends from 2001 through 2008. National and regional estimates are based on the NFLIS national sample of laboratories (see Appendix A for a list of NFLIS laboratories, including those in the national sample). Federal laboratory data reported in STRIDE are also presented. Section 2 presents drug analysis results for all state and local laboratories that reported at least 6 months of data to NFLIS during 2008.

Section 3 describes heroin, cocaine, and methamphetamine purity analyses reported by state and local laboratories. Section 4 presents a Geographic Information System (GIS) analysis on drug seizures of hydrocodone and oxycodone by state and by county for selected states. Section 5 presents drugs reported for selected cities across the country. A summary of findings from the recent NFLIS laboratory survey is also included. The benefits and limitations of NFLIS are presented in Appendix B. A key area of improvement to NFLIS includes ongoing enhancements to the NFLIS Interactive Data Site (IDS); Appendix C summarizes these IDS enhancement activities.





NATIONAL AND RE

Since 2001, NFLIS has produced estimates of the number of drug items and drug cases analyzed by state and local laboratories from a nationally representative sample of laboratories.

The following section describes national and regional estimates for drug items analyzed by state and local laboratories in 2008. Trends are presented for selected drugs from 2001 through 2008. The methods used in preparing these estimates are described in Appendix D.

1.1 DRUG ITEMS ANALYZED

In 2008, a total of 1,768,886 drug items were analyzed by state and local forensic laboratories in the United States. This estimate is a decrease of 2% from the 1,807,810 drug items analyzed during 2007. Table 1.1 presents the 25 most frequently identified drugs for the nation and for the census regions.

The top 25 drugs accounted for 90% of all drugs analyzed in 2008. As in previous years, the majority of all drugs reported in NFLIS were identified as the top 4 drugs, with cannabis/THC, cocaine, methamphetamine, and heroin representing 77% of all drugs analyzed. Nationally, 592,053 items were identified as cannabis/THC (33%), 534,324 as cocaine (30%), 138,551 as methamphetamine (8%), and 103,326 as heroin (6%). In 2008, BZP replaced ketamine among the 25 most frequently identified drugs (4,629 items).

There were 7 narcotic analgesics in the top 25 drugs: hydrocodone (41,130 items), oxycodone (36,188 items), methadone (10,459 items), morphine (6,239 items), buprenorphine (5,627 items), codeine (3,987 items), and hydromorphone (1,921 items). Also included were four benzodiazepines: alprazolam (34,919 items), clonazepam (8,675 items), diazepam (7,347 items), and lorazepam (2,047 items). Other controlled pharmaceutical drugs were phencyclidine (PCP) (5,968 items) and methylphenidate (1,751 items). Carisoprodol (4,291 items), a noncontrolled pharmaceutical, and pseudoephedrine (4,964 items), a listed chemical, were also included in the 25 most frequently identified drugs.



REGIONAL ESTIMATES

Table 1.1 NATIONAL AND REGIONAL ESTIMATES FOR THE 25 MOST FREQUENTLY IDENTIFIED DRUGS*
Estimated number and percentage of total analyzed drug items, 2008.

Drug	National		West		Midwest		Northeast		South	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Cannabis/THC	592,053	33.47%	89,658	29.27%	193,224	48.66%	97,676	31.74%	211,495	27.91%
Cocaine	534,324	30.21%	58,565	19.12%	87,794	22.11%	109,621	35.63%	278,345	36.73%
Methamphetamine	138,551	7.83%	78,008	25.47%	20,132	5.07%	1,414	0.46%	38,996	5.15%
Heroin	103,326	5.84%	12,927	4.22%	23,220	5.85%	35,256	11.46%	31,923	4.21%
Hydrocodone	41,130	2.33%	4,882	1.59%	9,254	2.33%	4,116	1.34%	22,878	3.02%
Oxycodone	36,188	2.05%	4,227	1.38%	6,732	1.70%	8,423	2.74%	16,805	2.22%
Alprazolam	34,919	1.97%	1,805	0.59%	6,545	1.65%	5,489	1.78%	21,080	2.78%
MDMA	22,891	1.29%	6,127	2.00%	5,252	1.32%	1,833	0.60%	9,679	1.28%
Noncontrolled, non-narcotic drug	12,150	0.69%	***	***	***	***	2,311	0.75%	***	***
Methadone	10,459	0.59%	1,753	0.57%	1,756	0.44%	2,110	0.69%	4,840	0.64%
Clonazepam	8,675	0.49%	875	0.29%	1,966	0.50%	2,168	0.70%	3,665	0.48%
Diazepam	7,347	0.42%	1,069	0.35%	1,894	0.48%	1,053	0.34%	3,331	0.44%
Morphine	6,239	0.35%	1,359	0.44%	1,401	0.35%	995	0.32%	2,484	0.33%
Phencyclidine (PCP)	5,968	0.34%	754	0.25%	255	0.06%	3,129	1.02%	1,831	0.24%
Buprenorphine	5,627	0.32%	264	0.09%	576	0.15%	2,631	0.86%	2,156	0.28%
Amphetamine	5,245	0.30%	541	0.18%	1,536	0.39%	693	0.23%	2,476	0.33%
Pseudoephedrine**	4,964	0.28%	281	0.09%	2,395	0.60%	***	***	2,280	0.30%
BZP	4,629	0.26%	489	0.16%	1,268	0.32%	460	0.15%	2,412	0.32%
Carisoprodol	4,291	0.24%	711	0.23%	451	0.11%	143	0.05%	2,986	0.39%
Codeine	3,987	0.23%	555	0.18%	652	0.16%	626	0.20%	2,154	0.28%
Psilocin	3,323	0.19%	1,077	0.35%	858	0.22%	551	0.18%	837	0.11%
Lorazepam	2,047	0.12%	314	0.10%	616	0.16%	372	0.12%	744	0.10%
MDA	1,923	0.11%	59	0.02%	47	0.01%	1,126	0.37%	691	0.09%
Hydromorphone	1,921	0.11%	216	0.07%	410	0.10%	205	0.07%	1,090	0.14%
Methylphenidate	1,751	0.10%	203	0.07%	554	0.14%	334	0.11%	660	0.09%
<i>Top 25 Total</i>	1,593,927	90.11%	268,994	87.83%	371,272	93.50%	282,743	91.89%	670,918	88.53%
<i>All Other Analyzed Items</i>	174,958	9.89%	37,268	12.17%	25,808	6.50%	24,949	8.11%	86,933	11.47%
<i>Total Analyzed Items****</i>	1,768,886	100.00%	306,262	100.00%	397,080	100.00%	307,692	100.00%	757,852	100.00%

MDMA=3,4-Methylenedioxyamphetamine

BZP=1-Benzylpiperazine

MDA=3,4-Methylenedioxyamphetamine

* Sample n's and 95% confidence intervals for all estimates are available upon request.

** Includes items from a small number of laboratories that do not specify between pseudoephedrine and ephedrine.

*** The estimate for this drug does not meet standards of precision and reliability. See Appendix D for a more detailed methodology discussion.

****Numbers and percentages may not sum to totals due to suppression and rounding.

System To Retrieve Information from Drug Evidence II (STRIDE)

The DEA's System To Retrieve Information from Drug Evidence II (STRIDE) collects the results of drug evidence analyzed at DEA laboratories across the country. STRIDE reflects evidence submitted by the DEA, other federal law enforcement agencies, and some local police agencies that was obtained during drug seizures, undercover drug buys, and other activities. STRIDE captures data on both domestic and international drug cases; however, the following results describe only those drugs seized by law enforcement in the United States.

During 2008, a total of 51,022 drug exhibits or items were reported in STRIDE, about 3% of the estimated 1.8 million drug exhibits analyzed by state and local laboratories during this period. This is a decrease of 4% from the 53,320 exhibits reported in STRIDE in 2007. In 2008, more than three quarters of the drugs in STRIDE were identified as cocaine (30%), cannabis/THC (25%), methamphetamine (13%), or heroin (9%). Another 4% were identified as MDMA and 2% as oxycodone.

MOST FREQUENTLY IDENTIFIED DRUGS IN STRIDE, 2008

Drug	Number	Percent
Cocaine	15,373	30.13%
Cannabis/THC	12,667	24.83%
Methamphetamine	6,408	12.56%
Heroin	4,810	9.43%
MDMA	1,860	3.64%
Oxycodone	942	1.85%
Noncontrolled, non-narcotic drug	910	1.78%
BZP	546	1.07%
Hydrocodone	482	0.94%
Phencyclidine (PCP)	412	0.81%
<i>All Other Drugs</i>	6,612	12.96%
<i>Total Analyzed Items</i>	51,022	100.00%

1.2 DRUG CASES ANALYZED

Drug analysis results are also reported to NFLIS at the case level. These case-level data typically describe all drugs identified within a drug-related incident, although a small proportion of laboratories may assign a single case number to all drug submissions related to an entire investigation. Table 1.2 presents national estimates of cases containing the 25 most commonly identified drugs. This table illustrates the number of cases that contained one or more items of the specified drug. In 2008, there were 1,343,757 drug cases analyzed by state and local forensic laboratories, representing a 4% decrease from the 1,394,490 cases in 2007.

Among cases, cannabis/THC was the most common drug reported during 2008. Nationally, an estimated 39% of analyzed drug cases contained one or more cannabis/THC items, followed by cocaine, which was identified in 37% of all drug cases. About 9% of drug cases were estimated to have contained one or more methamphetamine items, and 7% of cases contained one or more heroin items. Hydrocodone, alprazolam, and oxycodone were each reported in about 3% of cases.

Table 1.2 NATIONAL CASE ESTIMATES
Number and percentage of cases containing the 25 most frequently identified drugs, 2008.

Drug	Number	Percent
Cannabis/THC	437,134	39.10%
Cocaine	414,250	37.05%
Methamphetamine	97,766	8.74%
Heroin	78,114	6.99%
Hydrocodone	34,035	3.04%
Alprazolam	28,911	2.59%
Oxycodone	28,017	2.51%
MDMA	15,441	1.38%
Methadone	8,616	0.77%
Noncontrolled, non-narcotic drug	8,342	0.75%
Clonazepam	7,563	0.68%
Diazepam	6,334	0.57%
Phencyclidine (PCP)	5,435	0.49%
Morphine	5,171	0.46%
Buprenorphine	4,916	0.44%
Amphetamine	4,394	0.39%
Carisoprodol	3,772	0.34%
Pseudoephedrine*	3,413	0.31%
Codeine	3,368	0.30%
BZP	3,023	0.27%
Psilocin	2,815	0.25%
Lorazepam	1,827	0.16%
MDA	1,721	0.15%
Hydromorphone	1,731	0.15%
Methylphenidate	1,441	0.13%
<i>Top 25 Total</i>	1,207,552	108.00%
<i>All Other Drugs</i>	136,205	12.18%
<i>Total All Drugs</i>	1,343,757**	120.18%***

MDMA=3,4-Methylenedioxyamphetamine

BZP=1-Benzylpiperazine

MDA=3,4-Methylenedioxyamphetamine

*Includes cases from a small number of laboratories that do not specify between pseudoephedrine and ephedrine.

**Numbers may not sum to totals due to rounding.

*** Multiple drugs can be reported within a single case, so the cumulative percentage exceeds 100%. The estimated national total of distinct case percentages is based on 1,118,380 distinct cases analyzed during 2008.

1.3 NATIONAL AND REGIONAL DRUG TRENDS

National prescription drug trends

Figure 1.1 presents national trends for the estimated number of alprazolam, oxycodone, hydrocodone, clonazepam, and morphine items analyzed by state and local laboratories from 2001 through 2008. Reports of each of these drugs increased significantly during this time ($p < .05$). From 2001 through 2008, alprazolam reports almost doubled, from 17,926 to 34,919 items. Hydrocodone items increased 201%, from 13,659 in 2001 to 41,130 in 2008, and oxycodone items increased 178%, from 13,004 in 2001 to 36,188 in 2008. From 2001 through 2008, reports of morphine increased 197%, from 2,103 to 6,239 items, and clonazepam increased 70%, from 5,106 to 8,675 items.

Other national drug trends

Figure 1.2 presents national trends for cannabis/THC, cocaine, methamphetamine, heroin, and MDMA. Nationally, methamphetamine decreased 44% from 2005 through 2008, from 247,288 to 138,551 items. Reports of heroin decreased from 2001 through 2008, but increased 11% between 2007 and 2008, from 93,327 to 103,326 items. From 2001 to 2004, MDMA continued to decline, then more than doubled from 9,540 items in 2004 to 22,891 items in 2008.

Regional prescription drug trends

Figure 1.3 presents regional trends per 100,000 persons aged 15 or older for alprazolam, oxycodone, hydrocodone, clonazepam, and morphine. This figure illustrates changes in drugs reported over time, taking into account the population of each region.

Reports of hydrocodone, oxycodone, and morphine increased significantly in all census regions from 2001 through 2008 ($p < .05$). In the West, the reported rate of oxycodone items increased by 693%, from 1.1 to 8.6 items per 100,000 persons (533 to 4,227 items). In the Northeast, the rate of hydrocodone reports increased 377%, from 863 items in 2001 to 4,116 items in 2008, (2.0 to 9.6 items per 100,000 persons). In the Midwest, the rate of hydrocodone reports increased 69% between 2007 and 2008, from 5,475 to 9,254 items (10.8 to 18.3 items per 100,000 persons). Although the rates are much lower, reports of morphine increased 294% in the West, from 345 items in 2001 to 1,359 items in 2008 (0.70 to 2.78 items per 100,000 persons).

Reports of alprazolam and clonazepam increased significantly from 2001 through 2008 in the Northeast, Midwest, and South ($p < .05$). In the Northeast, reports increased 148%, from 2,222 items in 2001 to 5,489 items in 2008 (5.2 to 12.9 items per 100,000 persons), and 102% in the Midwest, from 3,237 items in 2001 to 6,545 items in 2008 (6.4 to 11.3 items per 100,000 persons). In the South, alprazolam reports increased 75%, from 12,082 items in 2001 to 21,080 items in 2008 (15.3 to 26.7 items per 100,000 persons). The largest percentage increase in reports of clonazepam occurred in the Midwest (170% increase), from 728 items in 2001 to 1,966 items in 2008 (1.4 to 3.9 items per 100,000 persons).

Figure 1.1 National trend estimates for selected prescription drugs, January 2001–December 2008.

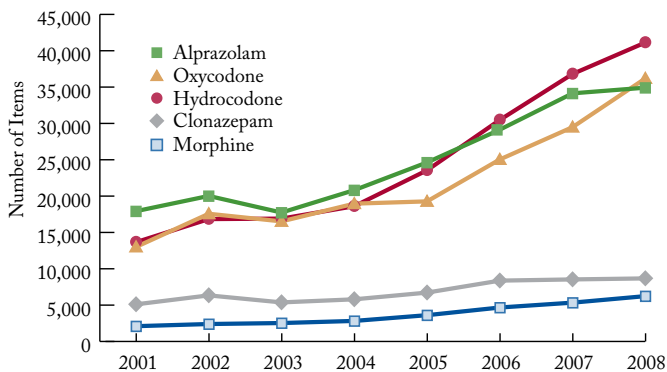
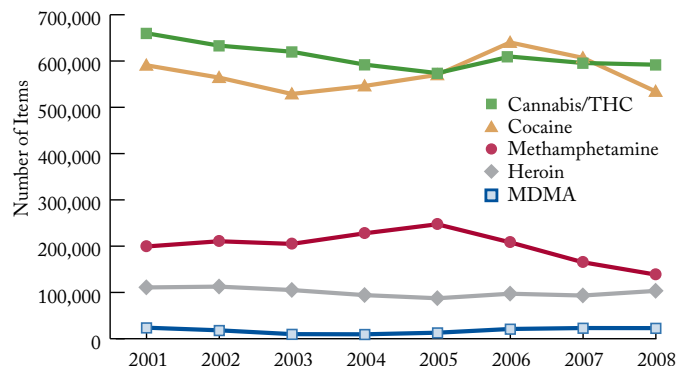


Figure 1.2 National trend estimates for other selected drugs, January 2001–December 2008.



Other regional drug trends

Figure 1.4 shows regional trends per 100,000 persons aged 15 or older for cannabis/THC, cocaine, methamphetamine, heroin, and MDMA. Cocaine reporting increased significantly from 2001 through 2008 in the Northeast, where reports increased from 104,368 to 109,621 items (244.5 to 256.8 items per 100,000 persons) ($p < .05$). In the Midwest, the rate of cocaine reports decreased significantly from 2001 through 2008, from 116,558 to 87,794 (230.4 to 173.6 items per 100,000 persons). Methamphetamine reporting significantly increased from 2001 through 2008 in the Northeast, but decreased 27% between 2007 and 2008, from 1,935 to 1,414 items (4.5 to 3.3 items per 100,000 persons). Reports of methamphetamine decreased significantly in the West from

2001 through 2008, including a 23% decrease between 2007 and 2008, from 101,116 to 78,008 items (206.6 to 159.4 items per 100,000 persons). Heroin decreased significantly in the Northeast and South from 2001 to 2008. Between 2007 and 2008, however, heroin reporting in the Northeast increased 9% from 11,841 to 12,927 items (71.0 to 82.6 items per 100,000 persons). From 2001 through 2008, reports of MDMA increased significantly in the Midwest (from 4.3 to 10.4 items per 100,000 persons) and in the West (from 7.4 to 12.5 items per 100,000 persons), but decreased significantly in the Northeast, from 5,435 to 1,833 items (12.7 to 4.3 items per 100,000 persons).

Figure 1.3 Regional trends in selected prescription drugs reported per 100,000 persons aged 15 or older, January 2001–December 2008.

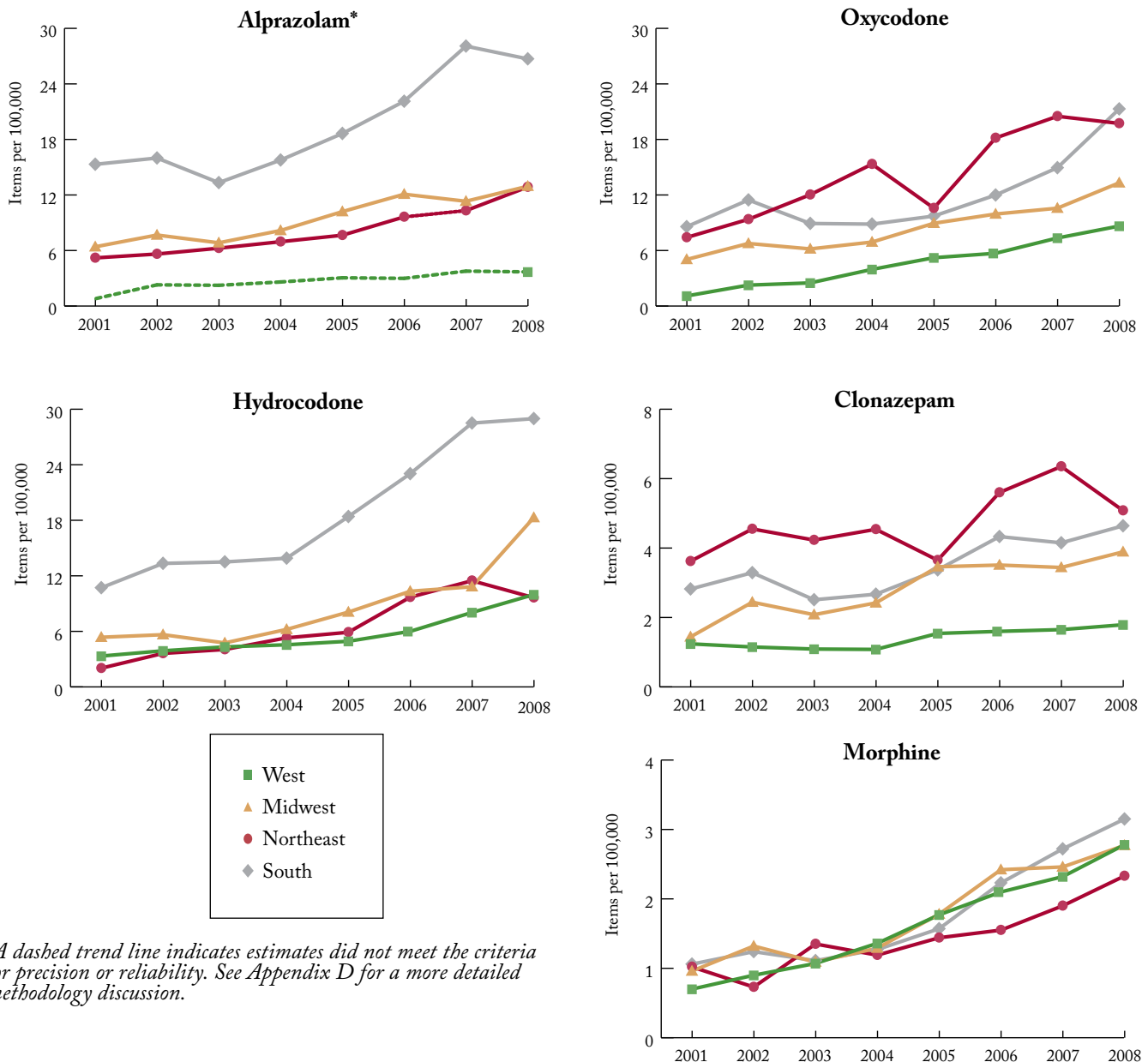
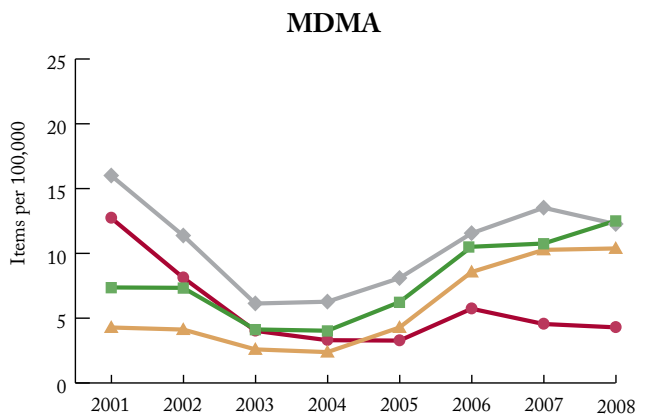
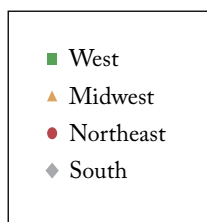
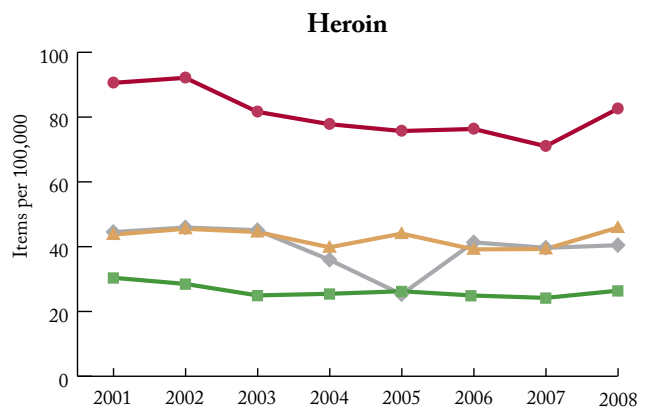
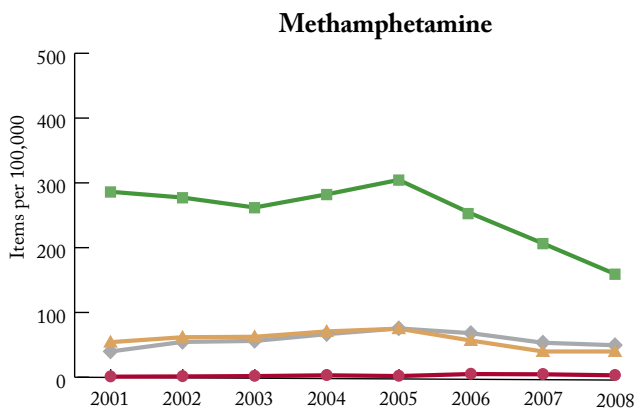
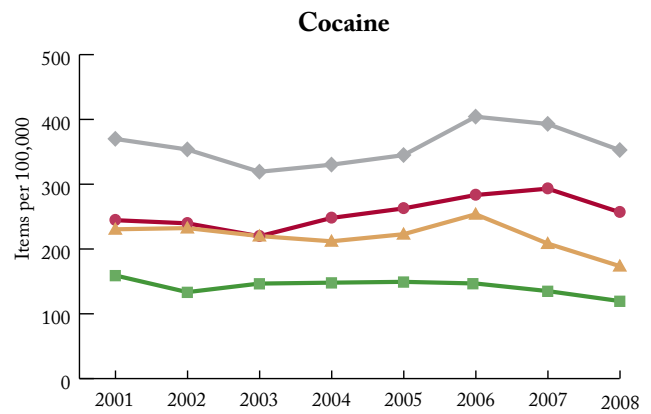
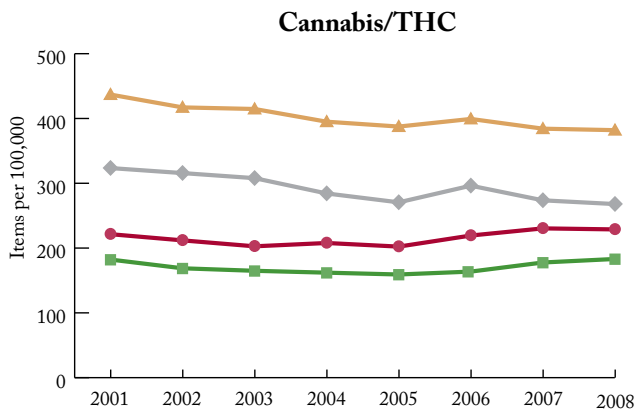


Figure 1.4 Regional trends in other selected drugs reported per 100,000 persons aged 15 or older, January 2001–December 2008.



MAJOR DRUG CATEGORIES

Section 2 presents results for major drug categories reported by NFLIS laboratories during 2008. It is important to note differences between the results presented in this section and the national and regional estimates presented in Section 1. The estimates presented in Section 1 are based on data reported by the NFLIS national sample of laboratories. Section 2 and subsequent sections include data from all NFLIS laboratories (including those not in the national sample) that reported 6 or more months of data in 2008. NFLIS laboratories analyzed a total of 1,500,084 drug items during 2008.

¹ Office of Applied Studies. (2008, September). *Results from the 2007 National Survey on Drug Use and Health: Detailed tables*. Rockville, MD: Substance Abuse and Mental Health Services Administration. [Available at <http://oas.samhsa.gov/WebOnly.htm#NSDUHtabs>]



Cannabis/THC sprinkled with morphine

2.1 NARCOTIC ANALGESICS

Nonmedical use of narcotic analgesics, or pain relievers available by prescription only, has increased in recent years. According to the 2007 National Survey on Drug Use and Health (NSDUH), 7% of adolescents aged 12 to 17, or 1.7 million adolescents, used prescription pain relievers for nonmedical reasons during the past year. In addition, an estimated 5% or 10.8 million adults reported such use during the past year.¹

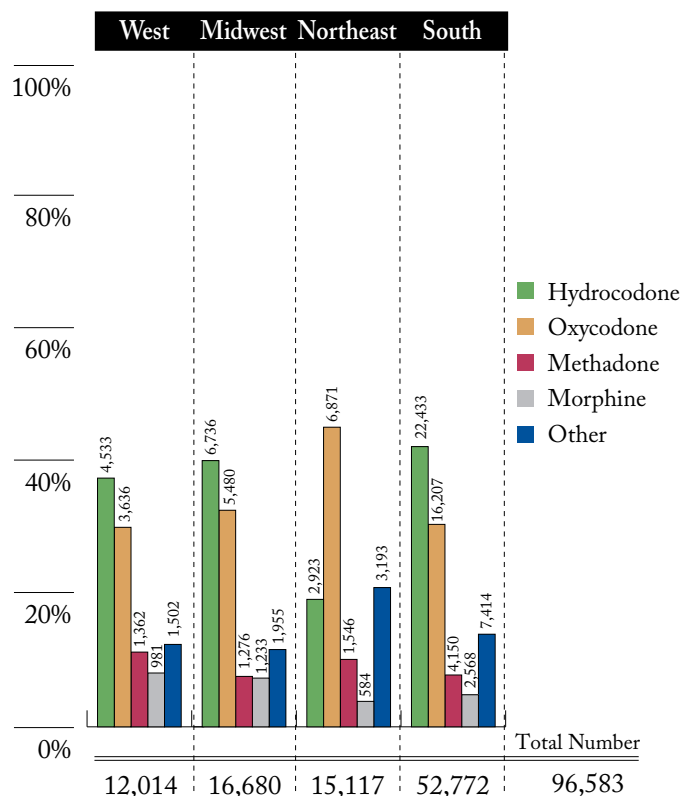
A total of 96,583 narcotic analgesics were identified by NFLIS laboratories in 2008, representing 6% of all items analyzed (Table 2.1). Hydrocodone (38%) and oxycodone (33%) accounted for the majority of all narcotic analgesics reported. The remaining narcotic analgesics reported included methadone (9%), morphine (6%), buprenorphine (4%), codeine (3%), hydromorphone (2%), propoxyphene (1%), dihydrocodeine (1%), and tramadol (1%).

Table 2.1 NARCOTIC ANALGESICS
Number and percentage of identified narcotic analgesics, 2008.

Analgesic	Number	Percent
Hydrocodone	36,625	37.92%
Oxycodone	32,194	33.33%
Methadone	8,334	8.63%
Morphine	5,366	5.56%
Buprenorphine	4,291	4.44%
Codeine	3,148	3.26%
Hydromorphone	1,773	1.84%
Propoxyphene	1,256	1.30%
Dihydrocodeine	1,149	1.19%
Tramadol*	1,093	1.13%
Fentanyl	525	0.55%
Opium	322	0.33%
Meperidine	300	0.31%
Oxymorphone	116	0.12%
Pentazocine	71	0.07%
Butorphanol	11	0.01%
Nalbuphine*	9	0.01%
<i>Total Narcotic Analgesics</i>	96,583	100.00%
<i>Total Items Analyzed</i>	1,500,084	

*Noncontrolled narcotic analgesics.

Figure 2.1 Distribution of narcotic analgesics within region, 2008.



The types of narcotic analgesics reported varied considerably by region (Figure 2.1). In comparison with reports from other regions in the country, higher percentages of hydrocodone were reported in the South (43%) and Midwest (40%), and the Northeast (45%) and Midwest (33%) reported higher percentages of oxycodone. Similarly, in comparison with reports from other U.S. regions, the West (11%) and Northeast (10%) reported higher percentages of methadone, and the West (8%) and Midwest (7%) reported higher percentages of morphine.

2.2 BENZODIAZEPINES

Benzodiazepines are used medically to produce sedation, induce sleep, relieve anxiety and muscle spasms, and prevent seizures.² However, benzodiazepines can be habit-forming, especially when taken for a long time or in high doses. According to the 2007 NSDUH, 12% of persons aged 18 to 25 and 8% of adults aged 26 or older used benzodiazepines for nonmedical reasons in their lifetime.³

During 2008, approximately 3% of all analyzed drugs, or 47,874 items, were identified by NFLIS laboratories as benzodiazepines (Table 2.2). Alprazolam accounted for two thirds of reported benzodiazepines. Approximately 16% of benzodiazepines were identified as clonazepam, 13% were identified as diazepam, and 4% were identified as lorazepam.

More than half of benzodiazepines reported in the South (73%), Northeast (61%), and Midwest (57%) were identified as

alprazolam (Figure 2.2). Clonazepam accounted for more than one fifth of benzodiazepines identified in the Northeast and in the West, while diazepam accounted for more than one quarter of the benzodiazepines identified in the West.

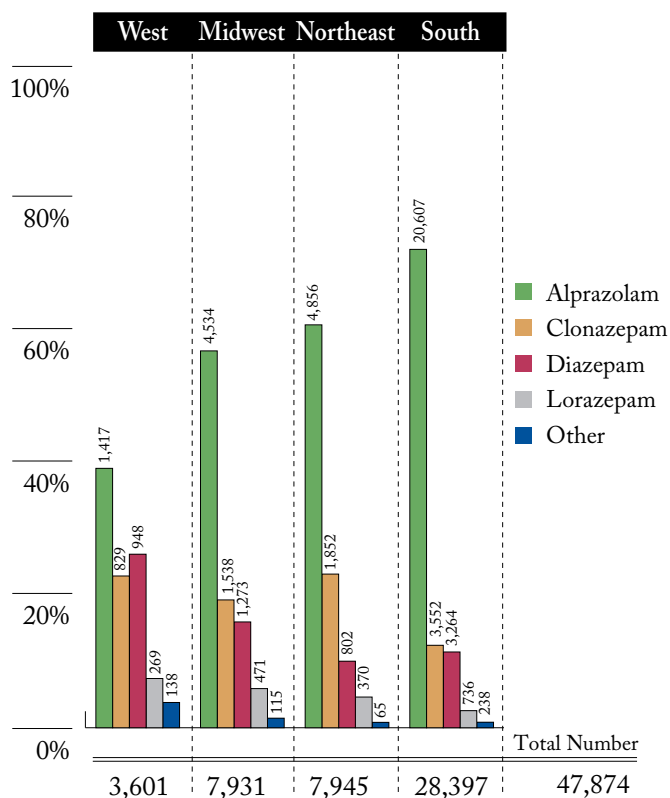
² U.S. Department of Justice, Drug Enforcement Administration (2005). *Drugs of abuse*. Retrieved on March 18, 2009, from <http://www.usdoj.gov/dea/pubs/abuse/index.htm>

³ See footnote 1.

Table 2.2 BENZODIAZEPINES
Number and percentage of identified benzodiazepines, 2008.

Benzodiazepine	Number	Percent
Alprazolam	31,414	65.62%
Clonazepam	7,771	16.23%
Diazepam	6,287	13.13%
Lorazepam	1,846	3.86%
Temazepam	395	0.82%
Chlordiazepoxide	90	0.19%
Triazolam	52	0.11%
Midazolam	13	0.03%
Flunitrazepam	6	0.01%
Total Benzodiazepines	47,874	100.00%
Total Analyzed Items	1,500,084	

Figure 2.2 Distribution of benzodiazepines within region, 2008.



2.3 CLUB DRUGS

The use of club drugs can cause serious health problems and in rare instances can be lethal. The most prevalent club drug is MDMA, also known as Ecstasy. According to the 2008 Monitoring the Future study, 4% of 12th grade students, 3% of 10th grade students, and 2% of 8th grade students used MDMA during the past year.⁴

NFLIS laboratories identified 26,780 items as club drugs in 2008 (Table 2.3). Of these, 68% were identified as MDMA. Among the other club drugs reported, 15% were identified as BZP, 7% as MDA, 5% as ketamine, and 4% as TFMPP.

As shown in Figure 2.3, MDMA was the most common club drug reported for each region, representing 81% of club drugs in the West, 73% in the Midwest, 64% in the South, and 46% in the Northeast. Almost one fifth of drugs reported in the Midwest and South were BZP, and almost one third in the Northeast were MDA.

⁴ Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2008, December 11). *Various stimulant drugs show continuing gradual declines among teens in 2008, most illicit drugs hold steady* (University of Michigan News Service, Ann Arbor, MI). Retrieved on March 18, 2009, from <http://www.monitoringthefuture.org>

Table 2.3 CLUB DRUGS
Number and percentage of identified club drugs, 2008.

Club Drug	Number	Percent
MDMA	18,322	68.42%
BZP	3,931	14.68%
MDA	1,802	6.73%
Ketamine	1,338	5.00%
TFMPP*	996	3.72%
GHB/GBL	226	0.84%
5-MeO-DIPT	147	0.54%
MDEA	18	0.07%
<i>Total Club Drugs</i>	26,780	100.00%
<i>Total Analyzed Items</i>	1,500,084	

MDMA=3,4-Methylenedioxyamphetamine

BZP=1-Benzylpiperazine

MDA=3,4-Methylenedioxyamphetamine

TFMPP=1-(3-Trifluoromethylphenyl)piperazine

GHB/GBL=Gamma-hydroxybutyrate or Gamma-butyrolactone

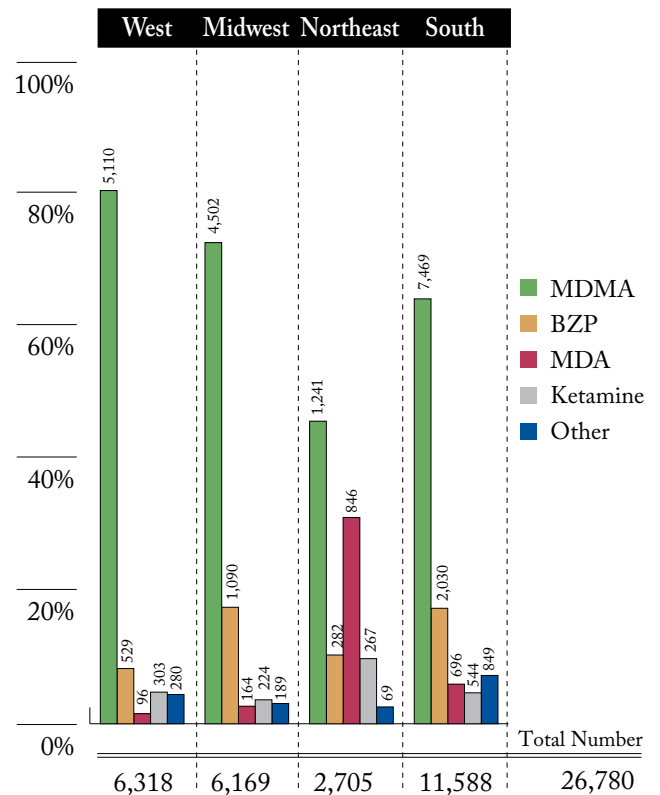
5-MeO-DIPT=5-Methoxy-N,N-diisopropyltryptamine

MDEA=3,4-Methylenedioxy-N-ethylamphetamine

* Noncontrolled club drug.



Figure 2.3 Distribution of club drugs within region, 2008.



2.4 ANABOLIC STEROIDS

Anabolic steroids can be legally prescribed to treat conditions resulting from hormone deficiency and body wasting in patients with the acquired immunodeficiency syndrome (AIDS) and other diseases that result in loss of lean muscle mass.⁵ However, some people abuse anabolic steroids to improve performance and appearance. According to the 2007 Youth Risk Behavior Survey (YRBS), 4% of students in grades 9 through 12 reported illegal steroid use in their lifetimes.⁶

During 2008, a total of 2,201 items were identified as anabolic steroids (Table 2.4). The most commonly identified anabolic steroid was testosterone (47%), followed by methandrostenolone (14%), stanozolol (12%), and nandrolone (11%). Testosterone accounted for 54% of anabolic steroids in the Midwest, 51% in the South, 42% in the Northeast, and 40% in the West (Figure 2.4). The Midwest reported the highest percentage of methandrostenolone (16%), while the Northeast and South reported the highest percentage of stanozolol (13% each). The West reported the highest percentage of nandrolone (15%).

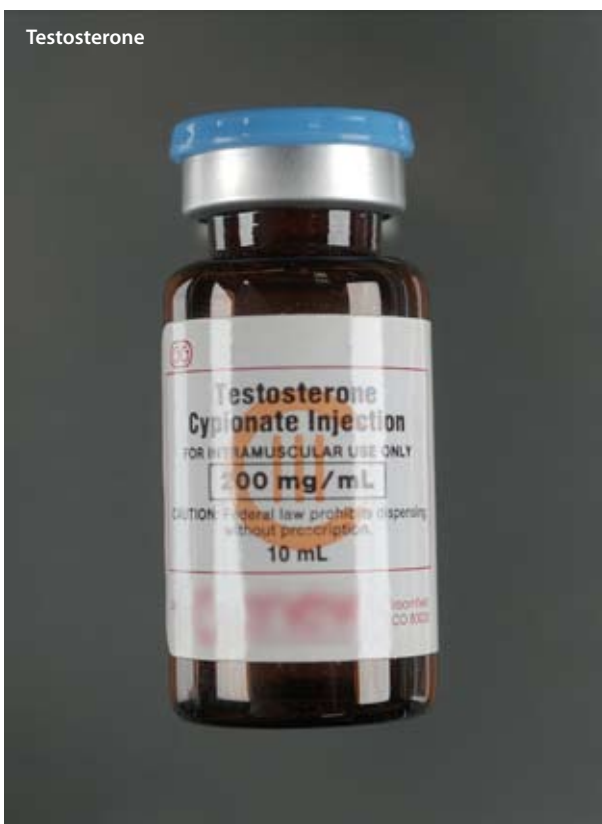
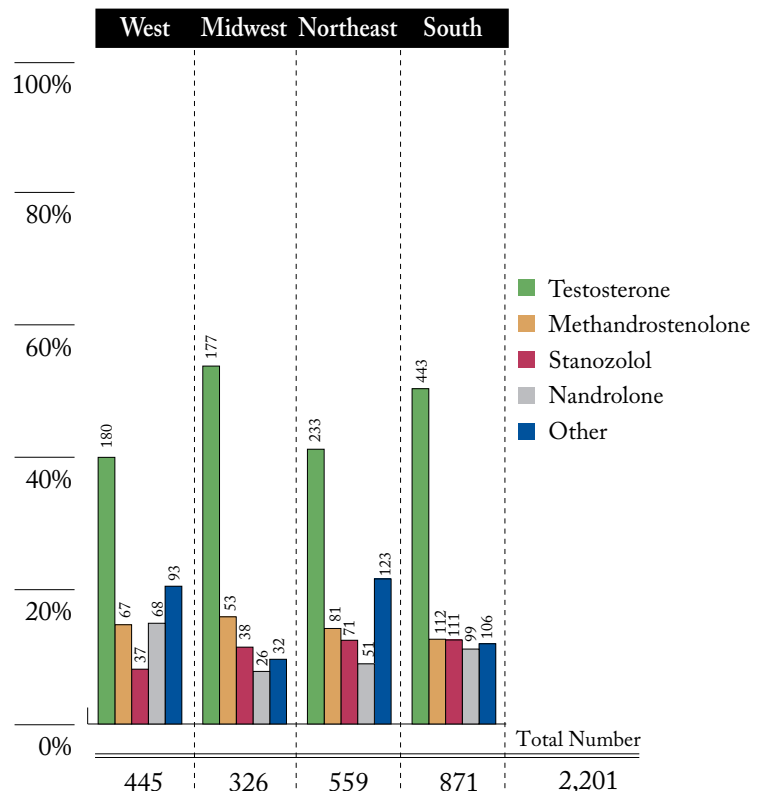
⁵ National Institute on Drug Abuse. (2008, June). *NIDA InfoFacts: Steroids (anabolic-androgenic)*. Retrieved on March 18, 2009, from <http://www.drugabuse.gov/Infofacts/steroids.html>

⁶ Centers for Disease Control and Prevention. (2008, June 6). Youth risk behavior surveillance—United States, 2007. *CDC Surveillance Summaries: Morbidity and Mortality Weekly Report*, 57(SS-04), 1-131. [Available at <http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5704a1.htm>]

Table 2.4 ANABOLIC STEROIDS
Number and percentage of identified anabolic steroids, 2008.

Steroid	Number	Percent
Testosterone	1,033	46.93%
Methandrostenolone	313	14.22%
Stanozolol	257	11.68%
Nandrolone	244	11.09%
Anabolic steroids, not specified	99	4.50%
Oxymetholone	74	3.36%
Oxandrolone	51	2.32%
Boldenone	46	2.09%
Mesterolone	26	1.18%
Methyltestosterone	19	0.86%
Drostanolone	16	0.73%
Methenolone	15	0.68%
Fluoxymesterone	5	0.23%
Methandriol	2	0.09%
Clostebol	1	0.04%
Total Anabolic Steroids	2,201	100.00%
Total Analyzed Items	1,500,084	

Figure 2.4 Distribution of anabolic steroids within region, 2008.



2.5 STIMULANTS

Stimulants are highly effective in treating a variety of health conditions, although they are most commonly prescribed as a treatment for attention deficit/hyperactivity disorder (ADHD), narcolepsy, and, in some instances, depression. However, when used nonmedically, stimulants can be both dangerous and addictive.⁷

A total of 140,641 stimulant items were analyzed during 2008, accounting for about 9% of all items reported (Table 2.5). Methamphetamine accounted for 94% of stimulants, or 131,630 items, identified in 2008. An additional 4,384 items were identified as amphetamine and 1,474 items as methylphenidate.

Methamphetamine accounted for 99% of stimulants reported in the West, 90% in the Midwest, and 90% in the South (Figure 2.5). In the Northeast, 32% of stimulants were reported as amphetamine and 12% as methylphenidate.

⁷ National Institute on Drug Abuse. (2008, July). *NIDA InfoFacts: Prescription and over-the-counter medications*. Retrieved on March 18, 2009, from <http://www.drugabuse.gov/Infofacts/PainMed.html>

Figure 2.5 Distribution of stimulants within region, 2008.

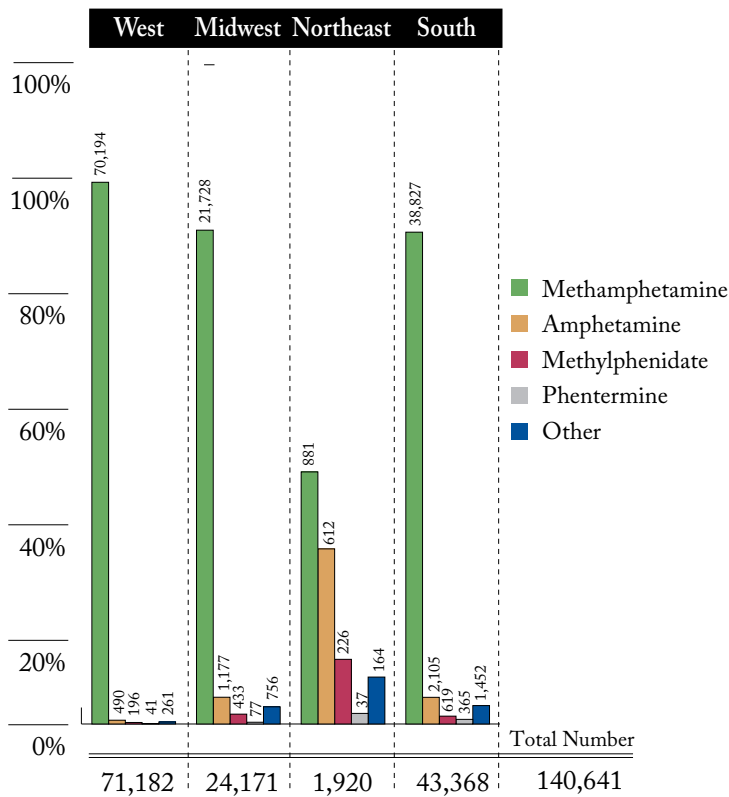


Table 2.5 STIMULANTS
Number and percentage of identified stimulants, 2008.

Stimulant	Number	Percent
Methamphetamine	131,630	93.59%
Amphetamine	4,384	3.12%
Caffeine*	1,654	1.18%
Methylphenidate	1,474	1.05%
Phentermine	520	0.37%
Ephedrine**	339	0.24%
Cathinone	170	0.12%
N,N-dimethylamphetamine	95	0.07%
Phendimetrazine	80	0.06%
Modafinil	79	0.06%
Cathine	70	0.05%
Benzphetamine	38	0.03%
Phenylpropanolamine**	24	0.02%
Diethylpropion	18	0.01%
Methcathinone	14	0.01%
Fenfluramine	13	0.01%
Sibutramine	13	0.01%
Fenproporex	7	0.00%
Propylhexedrine***	6	0.00%
Phenmetrazine	3	0.00%
Chlorphentermine	3	0.00%
Mephentermine***	3	0.00%
Clobenzorex***	2	0.00%
Mazindol	1	0.00%
Pemoline	1	0.00%
Total Stimulants	140,641	100.00%
Total Analyzed Items	1,500,084	

* Substance is used as a cutting agent for illicit drugs and is a co-ingredient of some controlled pharmaceutical products.

** Listed chemicals.

*** Noncontrolled stimulants.

DRUG PURITY

One of the functions of NFLIS is the system's ability to monitor and analyze drug purity data. NFLIS drug purity data reflect results verified by chemical analysis and therefore have a high degree of validity. In addition, the NFLIS purity data are timely, allowing for recent fluctuations in purity to be monitored and assessed.

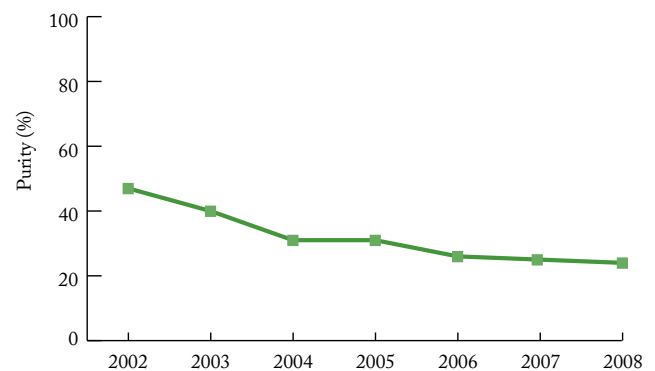
Some state and local forensic laboratories perform quantitative (or purity) analyses, but the majority do so only under special circumstances, such as a special request from law enforcement or from the prosecutor. A smaller number of laboratories perform quantitative analysis on a more routine basis due to state laws that require the amount of "pure" heroin or cocaine in an item to be determined. During 2008, 20 individual laboratories (including laboratories from 5 state systems) reported purity data to NFLIS.

It is important to consider the laboratory policies for conducting quantitative analysis when comparing purity data across laboratories because these factors can have an impact on the results presented. For example, some laboratories typically limit quantitative analysis to larger seizures (e.g., powders over 200 grams or 1 kilogram). Other laboratories perform quantitative analyses on a more routine basis, including smaller cocaine and heroin seizures.

3.1 HEROIN PURITY

This section describes heroin purity analyses reported by the Massachusetts State Police Crime Laboratory and the Austin Police Department Crime Laboratory. The Massachusetts laboratory expresses purity in terms of free base and has a policy of routinely performing quantitative analyses for heroin and cocaine submissions. The Austin laboratory conducts quantitative analysis to include residue.

Figure 3.1 Heroin purity, 2002–2008: The Massachusetts State Police Crime Laboratory.



The Massachusetts State Police reported heroin purity results for 824 items in 2008. Overall, the average purity of heroin, as reported by the Massachusetts laboratory, declined between 2002 and 2008. The average purity of heroin was 24% in 2008 compared with 25% in 2007, 26% in 2006, 31% in 2005 and 2004, 40% in 2003, and 47% in 2002 (Figure 3.1).

The Austin Police Department Crime Laboratory reported heroin purity for 21 items in 2008. The average heroin purity reported by the Austin laboratory in 2008 was 32% compared with 30% in 2007.

3.2 COCAINE PURITY

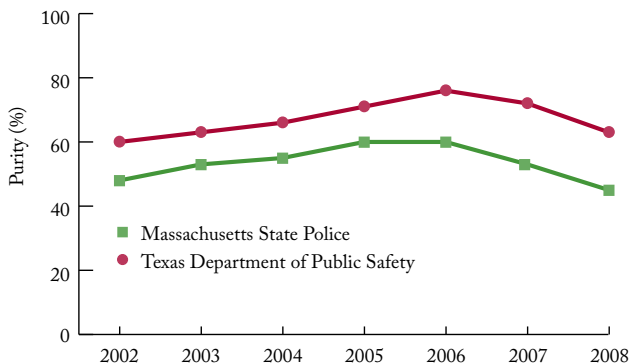
Cocaine purity is presented for three NFLIS laboratories—the Massachusetts State Police Crime Laboratory, the Texas Department of Public Safety (DPS), and the Austin Police Department Crime Laboratory.

The average cocaine purity reported by the Massachusetts laboratory steadily increased from 2002 to 2005, but decreased in 2007 and again in 2008. In 2008, Massachusetts reported purity results for 1,851 items with an average purity of 45% compared with 53% in 2007, 60% in 2006 and 2005, 55% in 2004, 53% in 2003, and 48% in 2002 (Figure 3.2).

The Texas DPS laboratory system, which typically conducts quantitative analyses for powders of 200 grams or more, reported purity data for 107 cocaine items during 2008. The average cocaine purity reported by Texas DPS increased steadily from 60% in 2002 to 76% in 2006, but it decreased in 2007 to 72% and again in 2008 to 63% (Figure 3.2).

The Austin Police Department Crime Laboratory reported cocaine purity for 168 items in 2008. Between 2007 and 2008, there was a sharp decline in the cocaine purity reported by the Austin laboratory, from 71% in 2007 to 48% in 2008.

Figure 3.2 Cocaine purity, 2002–2008: The Massachusetts State Police Crime Laboratory and the Texas Department of Public Safety.



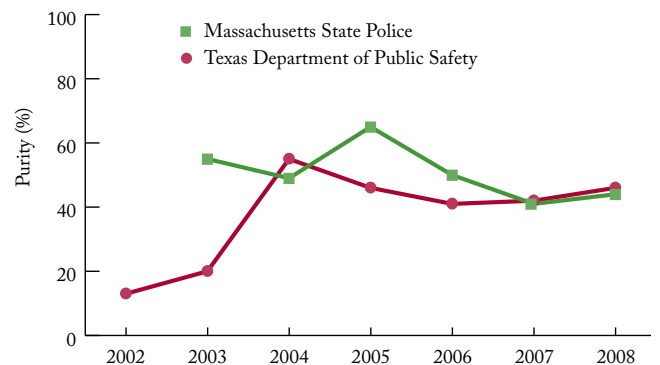
3.3 METHAMPHETAMINE PURITY

Methamphetamine purity is also presented for the Massachusetts State Police, the Texas DPS, and the Austin Police Department. The Massachusetts State Police reported methamphetamine purity for 16 items in 2008. The average methamphetamine purity reported by Massachusetts was 44% in 2008 compared with 41% in 2007, 50% in 2006, 65% in 2005, 49% in 2004, and 55% in 2003 (Figure 3.3).

The Texas DPS reported purity data for 45 methamphetamine items during 2008. The average methamphetamine purity increased sharply from 13% in 2002 and 20% in 2003 to 55% in 2004, steadily declined to 42% in 2007, and then increased slightly to 46% in 2008 (Figure 3.3).

The Austin Police Department reported methamphetamine purity for 28 items in 2008. The average methamphetamine purity reported by Austin increased substantially between 2007 and 2008, from 25% to 55%.

Figure 3.3 Methamphetamine purity, 2003–2008: The Massachusetts State Police Crime Laboratory and the Texas Department of Public Safety.



GIS ANALYSIS: HYDROCODONE AND OXYCODONE, COMPARISONS BY LOCATION, 2005 TO 2008

One of the unique features of NFLIS is the ability to analyze and monitor variation in drugs reported by laboratories by the county of origin. By using Geographic Information System (GIS) analyses, NFLIS can provide detailed geographic information on drug seizure locations.

This section presents data at the state and county levels for the percentage of analyzed drug items identified as hydrocodone and oxycodone at two points in time—2005 and 2008. In both years, these two pharmaceuticals were in the NFLIS top 25 most frequently identified drugs.

The GIS data presented here are based on information provided to the forensic laboratories by the submitting law enforcement agencies. The information submitted by law enforcement includes the ZIP Code or county of origin associated with the drug seizure incident or the name of the submitting law enforcement agency. When a ZIP Code or county of origin is not available, the drug seizure or incident is assigned to the same county as the submitting law enforcement agency. If the submitting agency is unknown, the seizure or incident is assigned to the county in which the laboratory completing the analyses is located.

It is important to note that these data may not include all drug items seized at the state and county levels. Instead, these data represent only those items that were submitted and analyzed by forensic laboratories. In addition, some laboratories within several states are not currently reporting data to NFLIS, and their absence may affect the relative distribution of drugs seized and analyzed. Nevertheless, these data can serve as an important source for identifying abuse and trafficking trends and patterns across and within states.



Figure 4.1 Percentage of analyzed drug items identified as hydrocodone, by state, 2005.

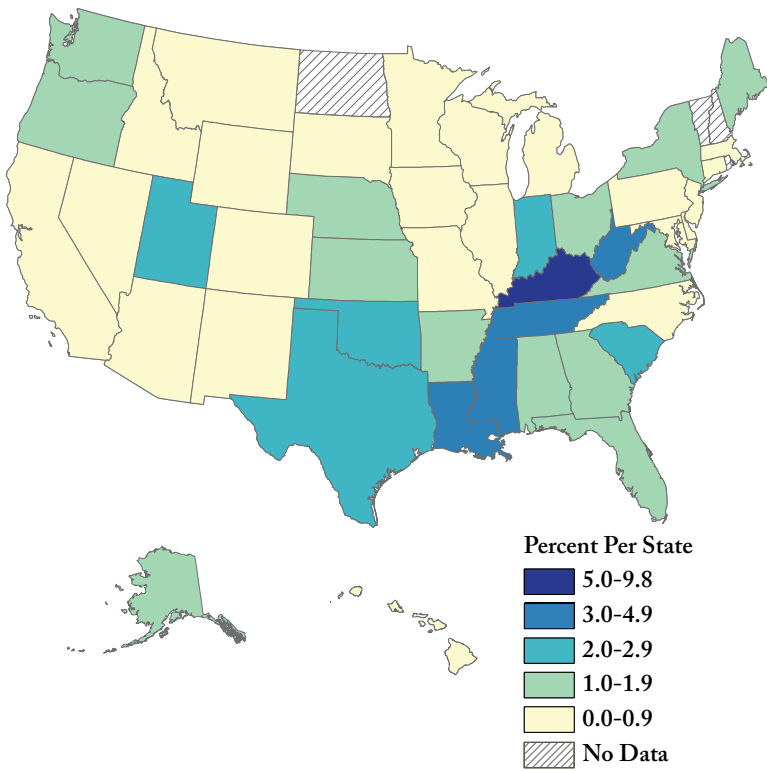


Figure 4.2 Percentage of analyzed drug items identified as hydrocodone, by state, 2008.

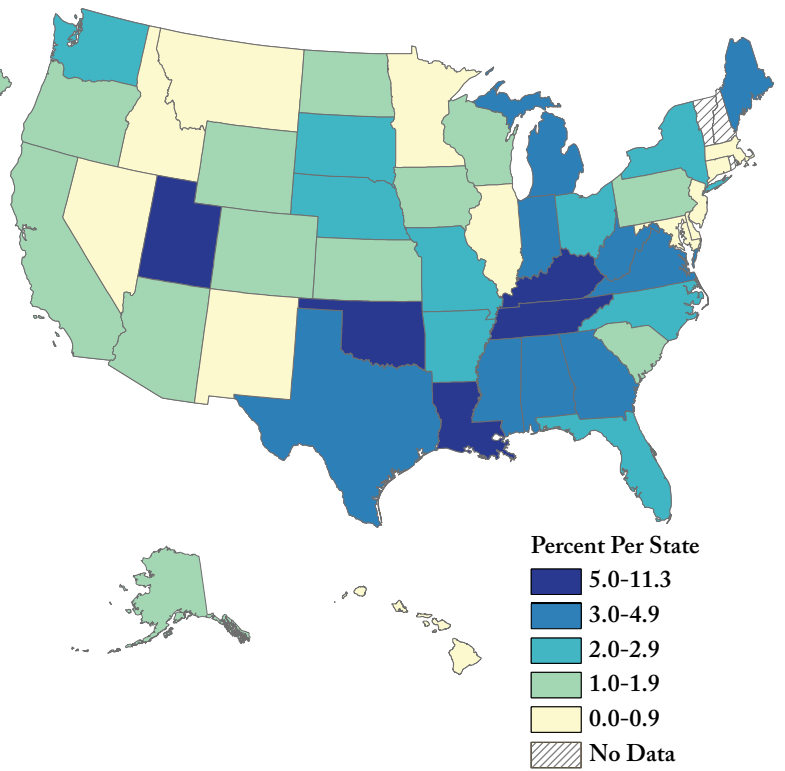


Figure 4.3 Percentage of analyzed drug items identified as oxycodone, by state, 2005.

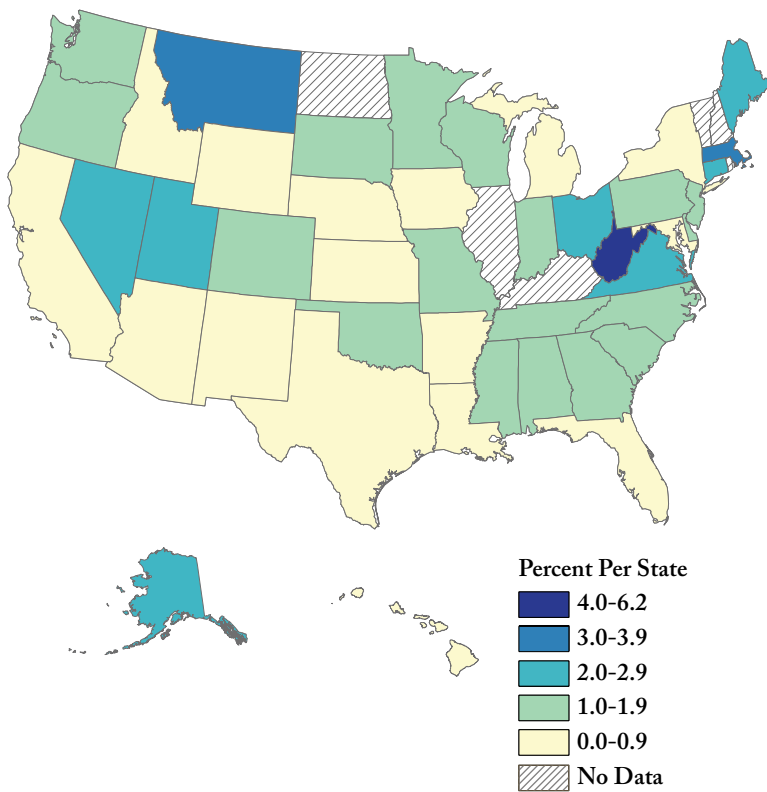


Figure 4.4 Percentage of analyzed drug items identified as oxycodone, by state, 2008.

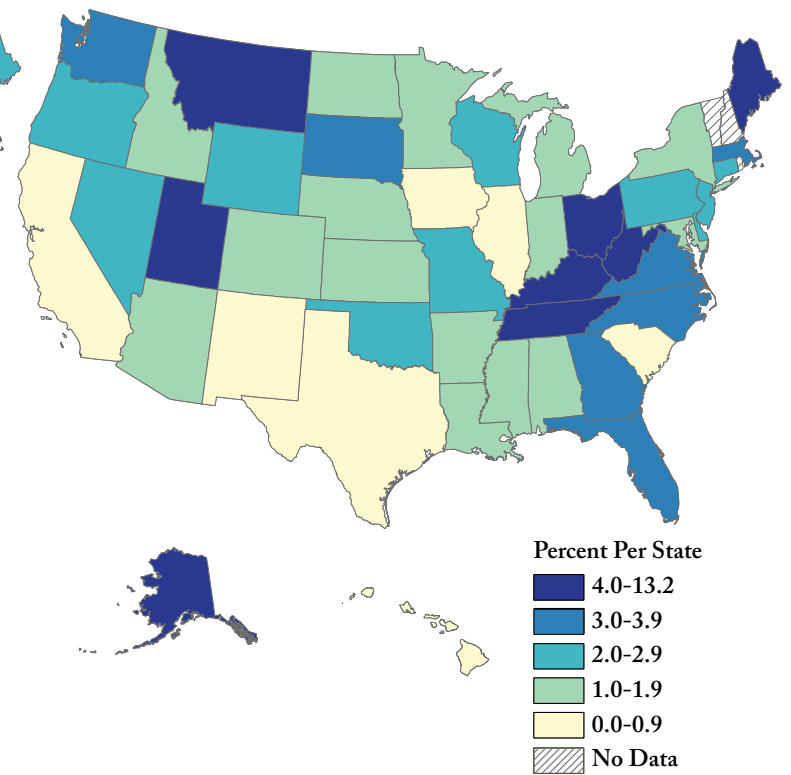


Figure 4.5 Percentage of analyzed drug items identified as hydrocodone in Tennessee, by county, 2005.

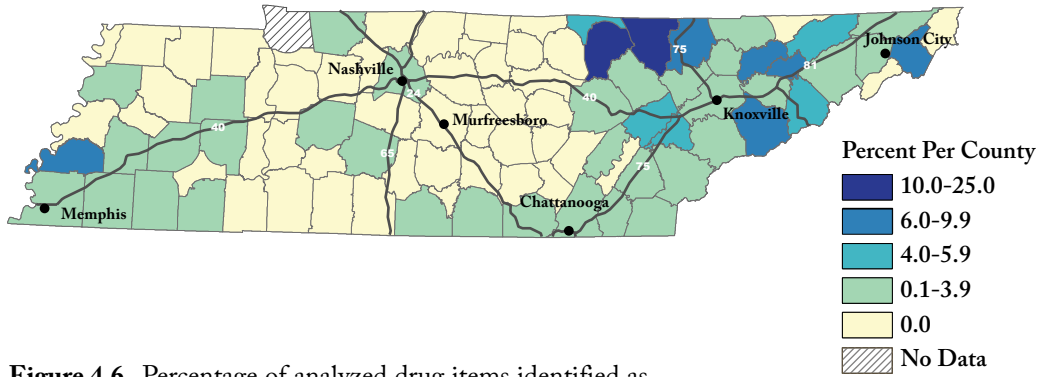


Figure 4.6 Percentage of analyzed drug items identified as hydrocodone in Tennessee, by county, 2008.

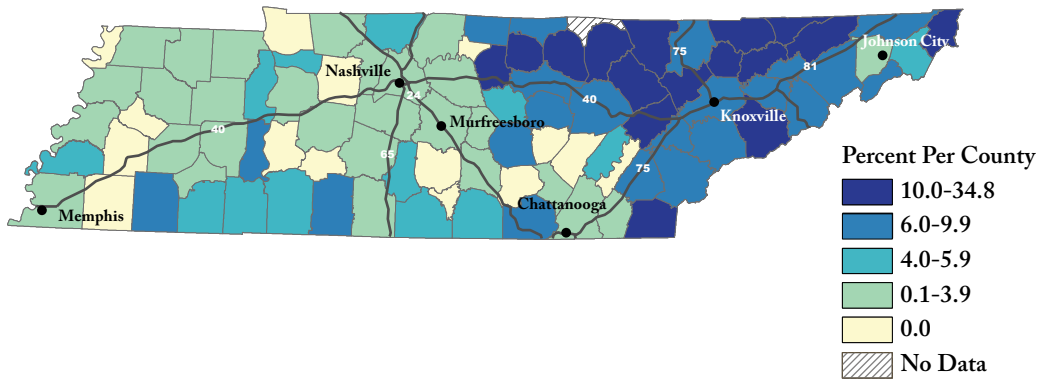


Figure 4.7 Percentage of analyzed drug items identified as oxycodone in Louisiana, by county, 2005.

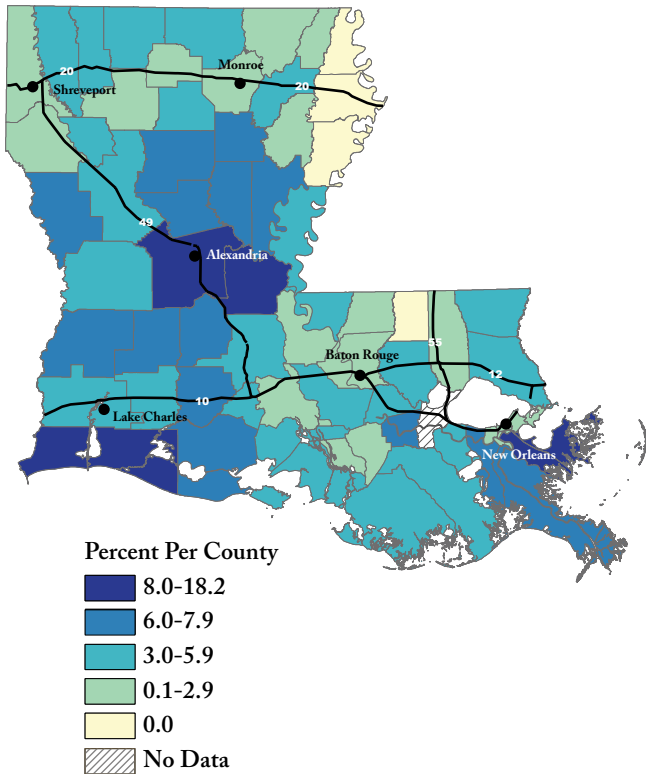
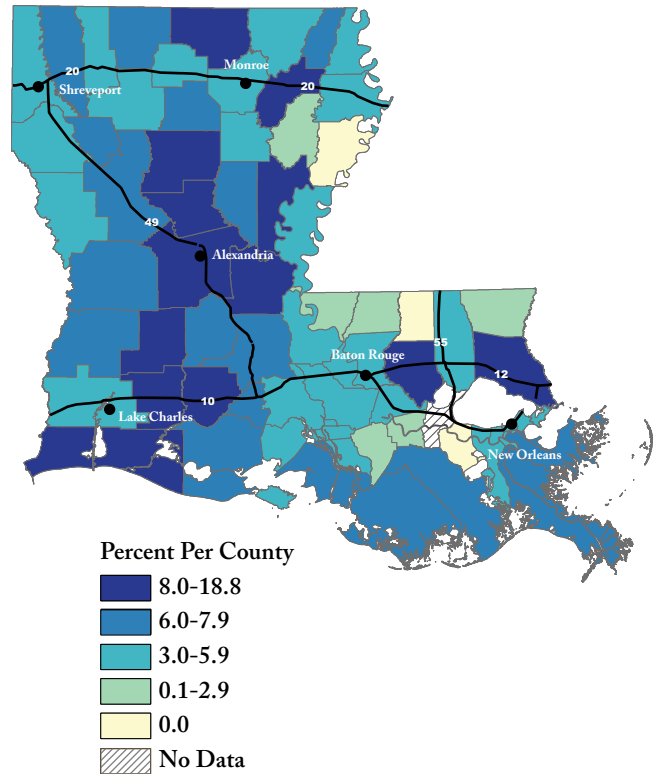


Figure 4.8 Percentage of analyzed drug items identified as oxycodone in Louisiana, by county, 2008.



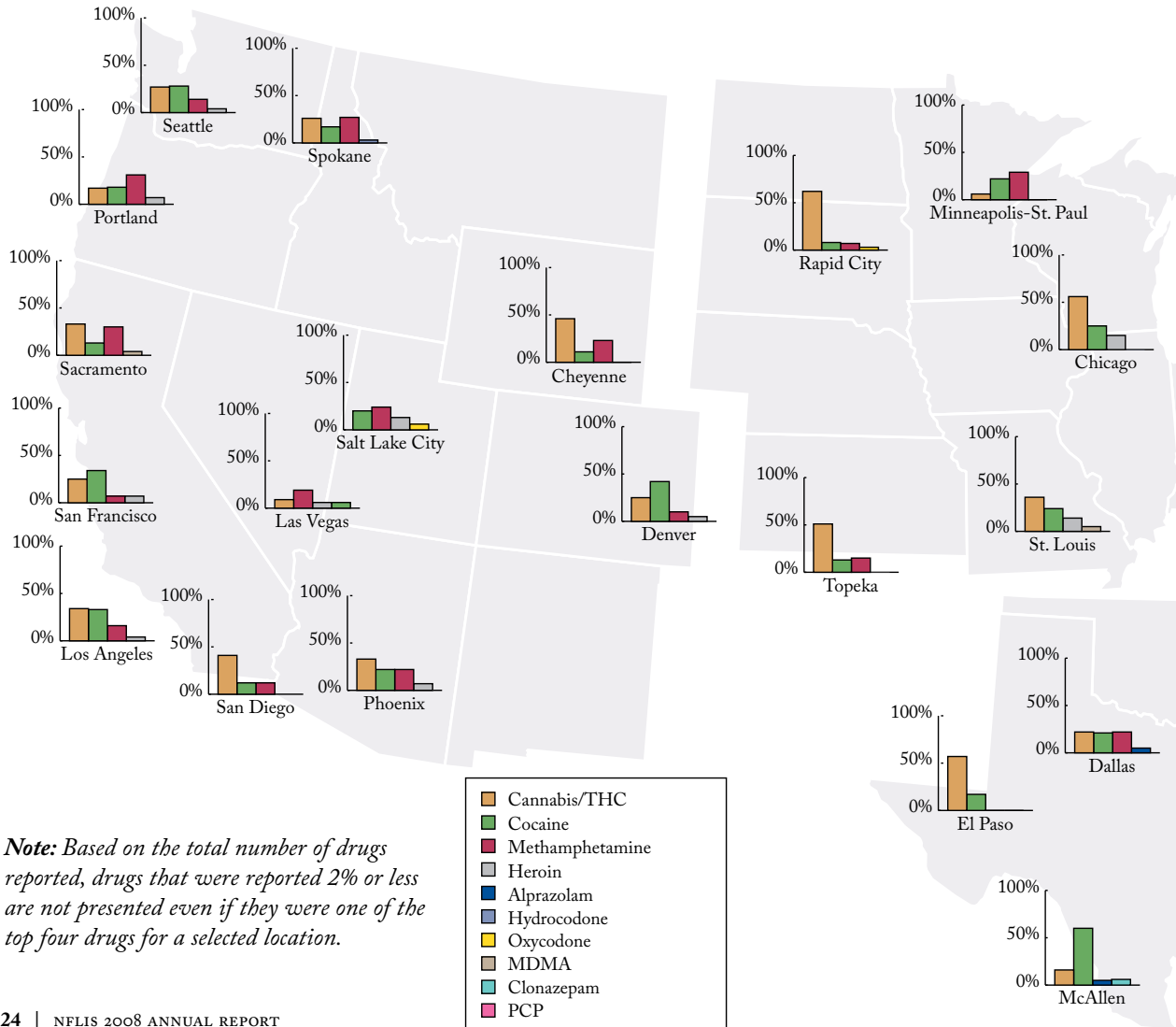
DRUGS IDENTIFIED SELECTED U.S. CITIES

NFLIS can be used to monitor drugs reported by forensic laboratories across the country, including large U.S. cities. The drug analysis results presented in this section were reported during 2008 by NFLIS laboratories in selected large cities.

This section presents 2008 data for the four most common drugs reported by NFLIS laboratories in selected cities. The following results highlight geographic differences in the types of drugs abused and trafficked, such as the higher levels of methamphetamine reporting on the West Coast and cocaine reporting on the East Coast.

Nationally, 30% of all drugs in NFLIS were identified as cocaine (Table 1.1). East Coast cities that reported the highest levels of cocaine included Miami (57%), Atlanta (53%), Tampa (50%), New York City (45%), Newark (44%), and Orlando (43%). Among other cities, McAllen (60%) and Denver (42%) also reported a high percentage of drugs identified as cocaine.

The highest percentages of methamphetamine were reported in cities located in the West and Midwest, such as Minneapolis-St. Paul (29%), Spokane (27%), Portland (26%), Salt Lake City (24%), Cheyenne (23%), Sacramento (22%), Phoenix (22%), and Oklahoma City (22%). Nationally, 8% of drugs in NFLIS were identified as methamphetamine.



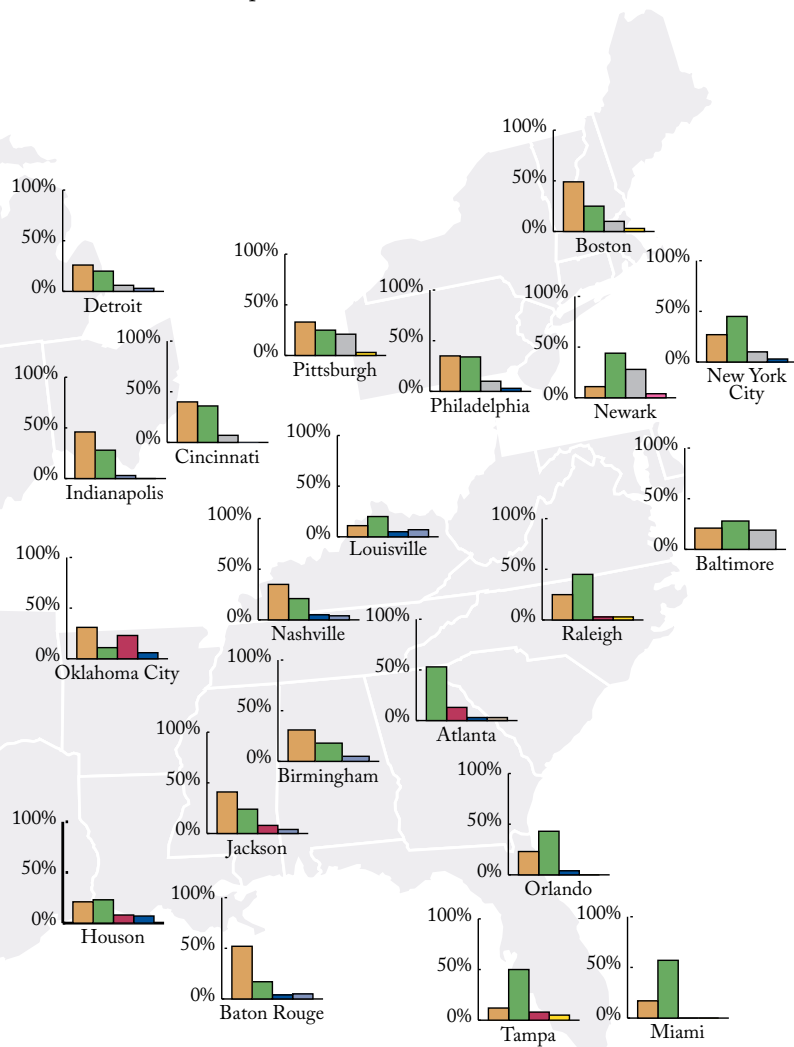
BY LABORATORIES IN

High percentages of heroin were reported in Northeastern cities, such as Newark (34%), Pittsburgh (24%), and Baltimore (19%), although Chicago (15%), St. Louis (14%), Salt Lake City (13%), New York City (11%), Boston (10%), and Philadelphia (10%) also reported heroin at a rate higher than the 6% reported nationally in NFLIS.

Among controlled prescription drugs, the highest percentages of hydrocodone were reported in Southern cities, such as Louisville (7%), Birmingham (5%), Baton Rouge (5%), Jackson (5%), and Nashville (4%), although Spokane (3%), Detroit (3%), and Indianapolis (3%) also reported hydrocodone at a higher percentage than the NFLIS national estimate of 2%.

In addition, Southern cities also reported higher percentages of alprazolam, including Houston (7%), Oklahoma City (6%), Dallas (5%), Louisville (5%), Nashville (5%), McAllen (5%), Orlando (4%), Baton Rouge (4%), and Atlanta (3%), although New York City (3%) and Philadelphia (3%) also reported alprazolam at a higher percentage than the NFLIS national estimate of 2%.

Tampa (5%), Boston (3%), Raleigh (3%), Pittsburgh (3%), and Rapid City (3%) reported oxycodone at a higher percentage than the NFLIS national estimate of 2%. McAllen (6%) reported the highest percentage of clonazepam compared with the NFLIS national estimate of less than 0.5 percent.



Selected Laboratories
Atlanta (Georgia State Bureau of Investigation—Decatur Laboratory)
Baltimore (Baltimore City Police Department)
Baton Rouge (Louisiana State Police)
Birmingham (Alabama Department of Forensic Sciences—Birmingham Laboratory)
Boston (Massachusetts Department of Public Health—Boston Laboratory)
Cheyenne (Wyoming State Crime Laboratory)
Chicago (Illinois State Police—Chicago Laboratory)
Cincinnati (Hamilton County Coroner's Office)
Dallas (Texas Department of Public Safety—Garland Laboratory)
Denver (Denver Police Department Crime Laboratory)
Detroit (Detroit Police Department)
El Paso (Texas Department of Public Safety—El Paso Laboratory)
Houston (Harris County Medical Examiner's Office)
Indianapolis (Indianapolis-Marion County Forensic Laboratory)
Jackson (Mississippi Department of Public Safety—Jackson Laboratory and Jackson Police Department Crime Laboratory)
Las Vegas (Las Vegas Police Department)
Los Angeles (Los Angeles Police Department and Los Angeles County Sheriff's Department)
Louisville (Kentucky State Police—Louisville Laboratory)
McAllen (Texas Department of Public Safety—McAllen Laboratory)
Miami (Miami-Dade Police Department Crime Laboratory)
Minneapolis-St. Paul (Minnesota Bureau of Criminal Apprehension—Minneapolis Laboratory)
Nashville (Tennessee Bureau of Investigation—Nashville Laboratory)
Newark (Newark Police Department)
New York City (New York Police Department Crime Laboratory)
Oklahoma City (Oklahoma State Bureau of Investigation—Oklahoma City Laboratory)
Orlando (Florida Department of Law Enforcement—Orlando Laboratory)
Philadelphia (Philadelphia Police Department Forensic Science Laboratory)
Phoenix (Phoenix Police Department)
Pittsburgh (Allegheny County Coroner's Office)
Portland (Oregon State Police—Portland Laboratory)
Rapid City (Rapid City Police Department)
Raleigh (North Carolina State Bureau of Investigation—Raleigh Laboratory)
Sacramento (Sacramento County District Attorney's Office)
Salt Lake City (Utah State Crime Laboratory—Salt Lake City Laboratory)
San Diego (San Diego Police Department)
San Francisco (San Francisco Police Department)
Seattle (Washington State Patrol Crime Laboratory—Seattle Laboratory)
Spokane (Washington State Patrol—Spokane Laboratory)
St. Louis (St. Louis Police Department Crime Laboratory)
Topeka (Kansas Bureau of Investigation—Topeka Laboratory)

2008 NFLIS LABORATORY SURVEY—SUMMARY OF FINDINGS

The purpose of the 2008 NFLIS *Survey of Crime Laboratory Drug Chemistry Sections* was to obtain updated data on U.S. forensic laboratories that regularly conduct drug analyses. Data from the survey will support the creation of national estimates and the update of the profiles of those laboratories currently participating or eligible to participate in NFLIS. A total of 154 of the 171 eligible state system and local (municipal/county) laboratories completed the survey for a 90% response rate. This section presents findings from the 2008 NFLIS survey.⁹

The NFLIS *Survey of Crime Laboratory Drug Chemistry Sections* collects key information about the nation's forensic laboratories, including administrative information, caseload data, laboratory policies, technical procedures, weighing and counting procedures, use of analysts' notes, and identification of noncontrolled drugs. The first NFLIS survey was conducted in 1998, with additional surveys in 2002 and 2004. In the summer of 2008, the fourth NFLIS laboratory survey was conducted. The survey asked laboratories for information based on the 2007 calendar year.

Key findings from the latest NFLIS laboratory survey include the following:

- Approximately 35% of responding laboratories were operated by a county, 32% were operated by the state, 26% were operated by a city or municipality, and 3% were operated by regional entities.
- The majority (58%) of responding laboratories/laboratory systems were medium-sized (analyzed 1,001 to 7,000 cases in 2007), 27% were large (analyzed more than 7,000 cases), and 14% were small (analyzed 1,000 or fewer cases).
- Based on laboratories providing complete caseload information for calendar year 2007, a total of 732,251 cases and 2,112,580 items were analyzed by responding laboratories providing complete caseload information. Responding Northeast laboratories providing complete caseload information reported analyzing the highest total number of items but the second lowest total number of cases across the regions. Laboratories in the West that provided complete caseload information, however, analyzed the fewest cases and items.
- Approximately 77% of laboratories reported that they do not analyze all drug cases submitted to them. About 73% of local laboratories and 86% of state systems do not analyze all submitted drug cases. When compared by size, fewer small laboratories reported not analyzing all cases (62%) than medium (78%) and large (80%) laboratories.
- The most common reason cited by laboratories for not analyzing a case was that the case was dismissed or did not have a defendant linked to it (67%). More than half of the laboratories did not analyze cases in which the defendant entered a guilty plea or plea bargain (58%), and almost half did not analyze cases that were adjudicated without forensic evidence testing (48%).
- Only 10% of responding laboratories reported that a set of policies exists across the agencies they serve regarding submission of the entire seizure; 62% reported that there is no set of policies across the agencies they serve. The remaining 28% did not know if such policies existed.
- Approximately 64% of state systems reported conducting quantitative analyses compared with 39% of local laboratories. Nearly 59% of large laboratories, 47% of medium laboratories, and 29% of small laboratories reported performing quantitative analyses.
- Almost three quarters of laboratories reported recording a weight or count for all items or exhibits. Of those laboratories that record a weight or count for submitted items or exhibits, 99% reported that the weight is recorded at the time the case is analyzed. Nearly all weights or counts are recorded in analysts' notes (89% in hard copy and 32% in electronic notes).
- About 3% of laboratories reported never identifying noncontrolled drugs, 63% reported rarely identifying them, 13% reported identifying them half of the time, 11% said they did so most of the time, and 11% reported identifying noncontrolled drugs all of the time. Of the 144 state systems and local laboratories identifying noncontrolled drugs, more than three quarters do so by special request and more than half identify noncontrolled drugs seized from clandestine laboratories or do so for investigations.

⁹ Findings presented in this report do not include data obtained from Puerto Rico. All results are based on information from the responding laboratories located in the 50 states.

PARTICIPATING AND REPORTING FORENSIC LABORATORIES

State	Lab Type	Laboratory Name	Reporting
AK	State	Alaska Department of Public Safety	✓
AL	State	Alabama Department of Forensic Sciences (10 sites)	✓
AR	State	Arkansas State Crime Laboratory	✓
AZ	Local	Mesa Police Department	✓
	Local	Phoenix Police Department	✓
	Local	Scottsdale Police Department	✓
CA	State	California Department of Justice (10 sites)	✓
	Local	Contra Costa County Sheriff's Office (Martinez)	✓
	Local	Fresno County Sheriff's Forensic Laboratory	✓
	Local	Kern County District Attorney's Office (Bakersfield)	✓
	Local	Long Beach Police Department	✓
	Local	Los Angeles County Sheriff's Department (4 sites)	✓
	Local	Los Angeles Police Department (2 sites)	✓
	Local	Orange County Sheriff's Department (Santa Ana)	✓
	Local	Sacramento County District Attorney's Office	✓
	Local	San Bernardino Sheriff's Office (2 sites)	✓
	Local	San Diego County Sheriff's Department	✓
	Local	San Diego Police Department	✓
	Local	San Francisco Police Department	✓
	Local	San Mateo County Sheriff's Office (San Mateo)	✓
	Local	Santa Clara District Attorney's Office (San Jose)	✓
	Local	Ventura County Sheriff's Department	✓
CO	State	Colorado Bureau of Investigation (3 sites)	✓
	Local	Aurora Police Department	✓
	Local	Colorado Springs Police Department	✓
	Local	Denver Police Department Crime Laboratory	✓
	Local	Grand Junction Police Department	✓
	Local	Jefferson County Sheriff's Office (Golden)	✓
CT	State	Connecticut Department of Public Safety	✓
DE	State	Chief Medical Examiner's Office	✓
FL	State	Florida Department of Law Enforcement (8 sites)	✓
	Local	Broward County Sheriff's Office (Fort Lauderdale)	✓
	Local	Indian River Crime Laboratory (Fort Pierce)	✓
	Local	Miami-Dade Police Department Crime Laboratory	✓
	Local	Palm Beach County Sheriff's Office Crime Laboratory (West Palm Beach)	✓
	Local	Pinellas County Forensic Laboratory (Largo)	✓
	Local	Sarasota County Sheriff's Office	✓
GA	State	Georgia State Bureau of Investigation (7 sites)	✓
HI	Local	Honolulu Police Department	✓
IA	State	Iowa Division of Criminal Investigations	✓
ID	State	Idaho State Police (3 sites)	✓
IL	State	Illinois State Police (8 sites)	✓
	Local	DuPage County Sheriff's Office (Wheaton)	✓
	Local	Northern Illinois Police Crime Laboratory (Chicago)	✓
IN	State	Indiana State Police Laboratory (4 sites)	✓
	Local	Indianapolis-Marion County Forensic Laboratory (Indianapolis)	✓
KS	State	Kansas Bureau of Investigation (3 sites)	✓
	Local	Johnson County Sheriff's Office (Mission)	✓
	Local	Sedgwick County Regional Forensic Science Center (Wichita)	✓
KY	State	Kentucky State Police (6 sites)	✓
LA	State	Louisiana State Police	✓
	Local	Acadiana Criminalistics Laboratory (New Iberia)	✓
	Local	Jefferson Parish Sheriff's Office (Metairie)	✓
	Local	New Orleans Police Department Crime Laboratory	✓
	Local	North Louisiana Criminalistics Laboratory System (3 sites)	✓
	Local	Southwest Louisiana Regional Laboratory (Lake Charles)	✓
MA	State	Massachusetts Department of Public Health (2 sites)	✓
	State	Massachusetts State Police	✓
	Local	University of Massachusetts Medical Center (Worcester)	✓
MD	State	Maryland State Police Forensic Sciences Division (3 sites)	✓
	Local	Anne Arundel County Police Department (Millersville)	✓
	Local	Baltimore City Police Department	✓
	Local	Baltimore County Police Department (Towson)	✓
	Local	Montgomery County Crime Laboratory (Rockville)	✓
ME	State	Maine Department of Human Services	✓
MI	State	Michigan State Police (7 sites)	✓
	Local	Detroit Police Department	✓
MN	State	Minnesota Bureau of Criminal Apprehension (2 sites)	✓
	Local	St. Paul Police Department	✓
MO	State	Missouri State Highway Patrol (8 sites)	✓
	Local	Independence Police Department	✓
	Local	KCMO Regional Crime Laboratory (Kansas City)	✓
	Local	St. Charles County Criminalistics Laboratory (O'Fallon)	✓
	Local	St. Louis County Crime Laboratory (Clayton)	✓
	Local	St. Louis Police Department	✓
MS	State	Mississippi Department of Public Safety (4 sites)	✓
	Local	Jackson Police Department Crime Laboratory	✓
	Local	Tupelo Police Department	✓
MT	State	Montana Forensic Science Division	✓
NC	State	North Carolina State Bureau of Investigation (2 sites)	✓
	Local	Charlotte-Mecklenburg Police Department	✓
ND	State	North Dakota Crime Laboratory Division	✓
NE	State	Nebraska State Patrol Criminalistics Laboratory (2 sites)	✓
NJ	State	New Jersey State Police (4 sites)	✓
	Local	Burlington County Forensic Laboratory (Mt. Holly)	✓
	Local	Cape May County Prosecutor's Office	✓
	Local	Hudson County Prosecutor's Office (Jersey City)	✓
	Local	Newark Police Department	✓
	Local	Ocean County Sheriff's Department (Toms River)	✓
	Local	Union County Prosecutor's Office (Westfield)	✓
NM	State	New Mexico Department of Public Safety	✓
	Local	Albuquerque Police Department	✓
NV	Local	Las Vegas Police Department	✓
	Local	Washoe County Sheriff's Office Crime Laboratory (Reno)	✓
NY	State	New York State Police (4 sites)	✓
	Local	Erie County Central Police Services Laboratory (Buffalo)	✓
	Local	Monroe County Department of Public Safety (Rochester)	✓
	Local	Nassau County Police Department (Mineola)	✓
	Local	New York City Police Department Crime Laboratory*	✓
	Local	Niagara County Police Department (Lockport)	✓
	Local	Onondaga County Center for Forensic Sciences (Syracuse)	✓
	Local	Suffolk County Crime Laboratory (Hauppauge)	✓
	Local	Westchester County Forensic Sciences Laboratory (Valhalla)	✓
	Local	Yonkers Police Department Forensic Science Laboratory	✓
OH	State	Ohio Bureau of Criminal Identification & Investigation (3 sites)	✓
	State	Ohio State Highway Patrol	✓
	Local	Canton-Stark County Crime Laboratory (Canton)	✓
	Local	Columbus Police Department	✓
	Local	Hamilton County Coroner's Office (Cincinnati)	✓
	Local	Lake County Regional Forensic Laboratory (Painesville)	✓
	Local	Mansfield Police Department	✓
	Local	Miami Valley Regional Crime Laboratory (Dayton)	✓
	Local	Newark Police Department Forensic Services	✓
	Local	Toledo Police Forensic Laboratory	✓
OK	State	Oklahoma State Bureau of Investigation (5 sites)	✓
OR	State	Oregon State Police Forensic Services Division (6 sites)	✓
PA	State	Pennsylvania State Police Crime Laboratory (6 sites)	✓
	Local	Allegheny County Coroner's Office (Pittsburgh)	✓
	Local	Bucks County Crime Laboratory (Warminster)	✓
	Local	Philadelphia Police Department Forensic Science Laboratory	✓
RI	State	Rhode Island Forensic Sciences Laboratory	✓
SC	State	South Carolina Law Enforcement Division	✓
	Local	Charleston Police Department	✓
	Local	Spartanburg Police Department	✓
SD	Local	Rapid City Police Department	✓
TN	State	Tennessee Bureau of Investigation (3 sites)	✓
TX	State	Texas Department of Public Safety (13 sites)	✓
	Local	Austin Police Department	✓
	Local	Bexar County Criminal Investigations Laboratory (San Antonio)	✓
	Local	Brazoria County Crime Laboratory (Angleton)	✓
	Local	Fort Worth Police Department Criminalistics Laboratory	✓
	Local	Harris County Medical Examiner's Office (Houston)	✓
	Local	Jefferson County Sheriff's Regional Crime Laboratory (Beaumont)	✓
	Local	Pasadena Police Department	✓
UT	State	Utah State Crime Laboratory (4 sites)	✓
VA	State	Virginia Department of Forensic Science (4 sites)	✓
VT	State	Vermont Forensic Laboratory	✓
WA	State	Washington State Patrol (6 sites)	✓
WI	State	Wisconsin Department of Justice (3 sites)	✓
WV	State	West Virginia State Police	✓
WY	State	Wyoming State Crime Laboratory	✓
PR	Territory	Puerto Rico Crime Laboratory	✓

This list identifies participating and reporting laboratories as of April 2009.

Laboratories in bold are part of the national sample.

*The New York City Police Department Crime Laboratory currently reports summary data.

NFLIS BENEFITS AND LIMITATIONS

BENEFITS

The systematic collection and analysis of drug analysis data can improve our understanding of the nation's illegal drug problem. NFLIS serves as a critical resource for supporting drug scheduling policy and drug enforcement initiatives both nationally and in specific communities around the country.

Specifically, NFLIS helps the drug control community achieve its mission by

- providing detailed information on the prevalence and types of controlled substances secured in law enforcement operations;
- identifying variations in controlled and noncontrolled substances at the national, state, and local levels;
- identifying emerging drug problems and changes in drug availability in a timely fashion;
- monitoring the diversion of legitimately marketed drugs into illicit channels;
- providing information on the characteristics of drugs, including quantity, purity, and drug combinations; and
- supplementing information from other drug sources, including the DEA's STRIDE, the Drug Abuse Warning Network (DAWN), the National Survey on Drug Use and Health (NSDUH), and the Monitoring the Future (MTF) study.

NFLIS is an opportunity for state and local laboratories to participate in a useful and high-visibility initiative. Participating laboratories regularly receive reports that summarize national and regional data. In addition, the Interactive Data Site (IDS) is a secure Web site that allows NFLIS participants—including state and local laboratories, the DEA, other federal drug control agencies, and researchers—to run customized queries on the NFLIS data. Enhancements to the IDS will also provide a new interagency exchange forum that will allow the DEA, forensic laboratories, and other members of the drug control community to post and respond to current information.

LIMITATIONS

NFLIS has limitations that must be considered when interpreting findings generated from the database.

- Currently, NFLIS includes data from state and local forensic laboratories, as well as data from the DEA's STRIDE. STRIDE includes data from DEA laboratories across the country. The STRIDE data are shown separately in this report. Efforts are under way to enroll additional federal laboratories.
- NFLIS includes drug chemistry results from completed analyses only. Drug evidence secured by law enforcement but not analyzed by laboratories is not included in the database.
- National and regional estimates may be subject to variation associated with sample estimates, including nonresponse bias.
- For results presented in Sections 2 through 6, the absolute and relative frequency of analyzed results for individual drugs can, in part, be a function of laboratories' participating in NFLIS.
- State and local policies related to the enforcement and prosecution of specific drugs may affect drug evidence submissions to laboratories for analysis.
- Laboratory policies and procedures for handling drug evidence vary. Some laboratories analyze all evidence submitted to them, while others analyze only selected items. Many laboratories do not analyze drug evidence if the criminal case was dismissed from court or if no defendant could be linked to the case.
- Laboratories vary with respect to the records they maintain. For example, some laboratories' automated records include the weight of the sample selected for analysis (e.g., the weight of one of five bags of powder), while others record total weight.

NFLIS INTERACTIVE DATA SITE

Available since September 2001, the NFLIS Interactive Data Site (IDS) allows NFLIS laboratories to run queries on their own case-level data and on aggregated regional and national data.

The IDS operates as a secure section of the NFLIS Web site located on a restricted server. To access the IDS, each NFLIS laboratory is assigned a laboratory-specific username and password.

Over the past several years, a number of enhancements have been made to the IDS, including providing World Wide Web access to the IDS. This provides more secure and confidential IDS access, as well as improved system performance for laboratories with high-speed/broadband Web access.

Laboratories without Internet access can still use a modem to make a direct dial-up connection to the IDS. As part of the

enhanced IDS, different access levels are assigned to satisfy the specific NFLIS data needs of various users. Information about NFLIS, published reports, links to agencies, information relevant to drug control efforts, and NFLIS contact information are available to the general public. Participating NFLIS laboratories have access to their own case- and item-level data, as well as to aggregated state- and metropolitan-level data. Nonparticipating laboratories have access to aggregated state- and metropolitan-level data. Users have the ability to conduct analyses using preset queries. New usernames and passwords are required to access restricted areas of the NFLIS Web site, including the IDS. To participate, please visit the NFLIS Web site at <https://www.nflis.deadiversion.usdoj.gov/>.

The screenshot shows the NFLIS Home page in a Windows Internet Explorer browser window. The page title is "National Forensic Laboratory Information System - Windows Internet Explorer". The address bar shows "https://www.nflis.deadiversion.usdoj.gov/". The page content includes the NFLIS logo, a navigation menu on the left, and main text describing the system. A "Member Login" section is visible on the left. The right sidebar contains "NFLIS NEWS" with two news items: "The Midyear Report 2008 is now available." and "A presentation, "National, Regional, and Local Patterns of Drugs Seized by Law Enforcement and Analyzed by Crime Laboratories in the United States: 2004 - 2007," was given at the 61st Annual Meeting of the American Academy of Forensic Sciences, February 16-21, 2009, in Denver, CO." The footer contains "DEA Diversion Control", "Site Map", "Contacts", "FAQ", and "Disclaimer".

Since 2001, NFLIS reports have included national and regional estimates for the number of drug items and drug cases analyzed by state and local forensic laboratories in the United States. This appendix discusses the methods used for producing these estimates, including sample selection, weighting, and imputation and adjustment procedures. RTI International, under contract to the DEA, began implementing NFLIS in September 1997. Results from a 1998 survey (updated in 2002, 2004, and 2008) provided laboratory-specific information, including annual caseload figures, used to establish a national sampling frame of all state and local forensic laboratories that routinely perform drug analyses. A representative probability proportional to size sample was drawn on the basis of annual cases analyzed per laboratory, resulting in a NFLIS national sample of 29 state laboratory systems and 31 local or municipal laboratories, a total of 165 individual laboratories (see Appendix A for a list of sampled and nonsampled NFLIS laboratories). Only the data for those laboratories in the sample that reported drug analysis data for 6 or more months during 2008 were included in the national estimates.

WEIGHTING PROCEDURES

Data were weighted with respect to both the original sampling design and nonresponse in order to compute design-consistent, nonresponse-adjusted estimates. Weighted prevalence estimates were produced for drug cases and drug items analyzed by state and local forensic laboratories from January 2008 through December 2008.

A separate item-level and case-level weight was computed for each sample laboratory or laboratory system using caseload information obtained from an updated laboratory survey administered in 2008. These survey results allowed for the case- and item-level weights to be poststratified to reflect current levels of laboratory activity. Item-level prevalence estimates were computed using the item-level weights, and case-level estimates were computed using the case-level weights.

DRUG REPORT CUTOFF

For some drugs, such as cannabis/THC and cocaine, thousands of items are reported annually, allowing for reliable national prevalence estimates to be computed. For other drugs, reliable estimates cannot be computed because of a combination of low item counts and substantial variability in item counts between laboratories. Thus, a cutoff point for estimates was established.

The method for evaluating the precision and reliability of estimates was established using the relative standard error, or

RSE, which is the ratio between the standard error of an estimate and the estimate itself. As a rule, drug estimates with an RSE greater than 50% were suppressed and not shown in the tables.

Earlier reports stated that the coefficient of variation, or CV, was the statistic used to evaluate the reliability of an estimate. The CV and the RSE both measure variation; however, the RSE is usually expressed as a percentage and the CV is usually expressed as a decimal.

IMPUTATIONS AND ADJUSTMENTS

Due to technical and other reporting issues, several laboratories did not report data for every month during 2008. This resulted in missing monthly data, which is a concern in calculating national estimates of drug prevalence. Imputations were performed separately by drug for laboratories missing monthly data, using drug-specific proportions generated from laboratories reporting a full year of data.

Although most forensic laboratories report case-level analyses in a consistent manner, a small number of laboratories do not produce item-level counts that are comparable with those submitted by the vast majority of laboratories. Most laboratories report items in terms of the number of vials of the particular pill, yet a few laboratories report the count of the individual pills themselves as items. Because the case-level counts across laboratories are comparable, they were used to develop item-level counts for the few laboratories that count items differently. For those laboratories, it was assumed that drug-specific ratios of cases to items should be similar to laboratories serving similarly sized areas. Item-to-case ratios for each drug were produced for the similarly sized laboratories, and these drug-specific ratios were then used to adjust the drug item counts for the relevant laboratories.

STATISTICAL TECHNIQUES FOR TREND ANALYSIS

A trend analysis was performed on the January 2001 through December 2008 national and regional estimates. Typically, models test for mean differences; however, the national and regional estimates are totals. To work around this challenge, a bootstrapping technique was employed. (Bootstrapping is an iterative technique used to estimate variances when standard variance estimation procedures cannot be used.¹⁰) All statistical tests were performed at the 95% confidence level ($p < .05$). In other words, if a linear trend was found to be statistically different, then the probability of observing a linear trend (under the assumption that no linear trend existed) was less than 5%.

¹⁰ For more information on this technique, see Chernick, M. R. (1999). *Bootstrap methods: A practitioner's guide*. New York: Wiley.

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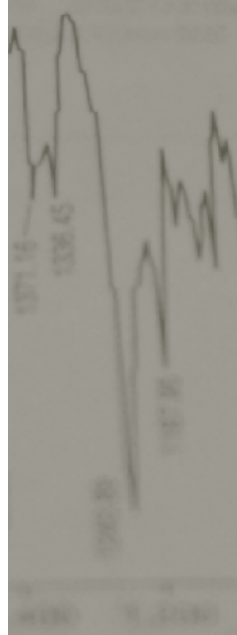
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Office of Diversion Control. (2009). *National Forensic Laboratory Information System: Year 2008 Annual Report*. Washington, DC: U.S. Drug Enforcement Administration.

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mine Base



FT-IR
Heroin Ba
50 scans, 1nm re
2.2 mg/150 mg



FT-IR
3,4-Methylenedioxyamphetamine
50 scans, 1nm resolu
5mg/150 mg KBr



Drug Enforcement Administration
Office of Diversion Control
8701 Morrisette Drive
Springfield, VA 22152

July 2009