Drug Enforcement Administration
Office of Diversion Control

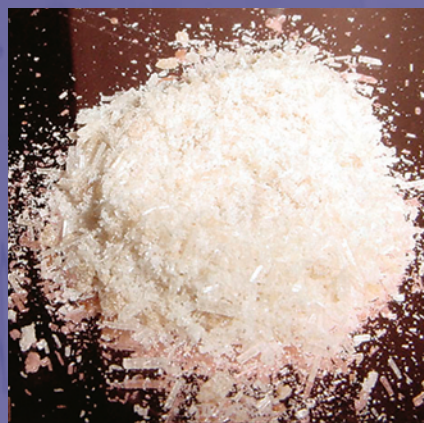U.S. Department of Justice · Drug Enforcement Administration

YEAR 2005 ANNUAL REPORT

NFLIS

NATIONAL FORENSIC LABORATORY INFORMATION SYSTEM

New DEA-NFLIS Web Site

The new DEA-NFLIS Web site, which provides access to the Interactive Data Site (IDS), is now available. The address is

https://www.nflis.deadiversion.usdoj.gov

As part of the enhanced IDS, various access levels are assigned to satisfy users' specific NFLIS data needs. Basic information about NFLIS, published reports, NFLIS contact information, information relevant to drug control efforts, and links to agency Web sites are available to the general public. Participating NFLIS laboratories have access to their own case- and item-level data, as well as to aggregate national-, regional-, state-, and city-level data. Laboratories in the process of joining NFLIS have access to aggregate state- and city-level data. Approved government agency staff have access to the aggregate data. Depending on the level of access, users can conduct analyses using preset queries. New usernames and passwords are required to gain access to restricted areas of the IDS.

Laboratories with high-speed Internet access are no longer limited to using dial-up to access the IDS. Laboratories without high-speed Internet access can still use a modem to make a direct dial-up connection to the IDS.

Please visit the new NFLIS Web site for additional information.

CONTENTS

Foreword

The Drug Enforcement Administration's (DEA's) Office of Diversion Control is pleased to present the National Forensic Laboratory Information System (NFLIS) 2005 Annual Report. NFLIS represents a partnership that includes 263 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, including tracking the diversion of controlled pharmaceuticals and the diversion of controlled chemicals into illegal markets.

NFLIS provides a unique source of information on the nation's drug problem, providing detailed and timely information on substances secured in law enforcement operations across the country. The *NFLIS 2005 Annual Report* presents national and regional findings on drug cases analyzed during the past year, including city- and county-level results on drug seizure locations. Among the key findings presented in the *NFLIS 2005 Annual Report*:

- An estimated 1.7 million drug items were analyzed by state and local laboratories in the United States in 2005. Cannabis/THC was the most frequently identified drug (573,904 items), followed by cocaine (570,176), methamphetamine (247,288), and heroin (87,402).

- Nationally, cannabis/THC, heroin, and MDMA declined significantly from 2001 to 2005, while methamphetamine, oxycodone, and hydrocodone items increased significantly.

- Regionally, methamphetamine increased significantly in the South, more than doubling over the 5-year period, while cocaine and heroin declined. Methamphetamine also increased in the Northeast, while heroin declined.

- Among other drugs in the top 25, oxycodone, hydrocodone, and alprazolam, all available in pharmaceutical products, increased significantly in the Northeast between 2001 and 2005. In addition, oxycodone increased in the West and Midwest, hydrocodone increased in the South and Midwest, and alprazolam increased in the Midwest.

- Overall, hydrocodone (39%) and oxycodone (30%) accounted for more than two-thirds of all identified narcotic analgesics, while alprazolam (e.g., Xanax) accounted for 61% of reported benzodiazepines and MDMA accounted for 84% of reported club drugs.

The DEA stands committed to continually improving drug intelligence data available to U.S. drug control agencies. We fully understand that the system would not be successful without the participation of forensic laboratories from across the country. The DEA would like to extend a special thank you to 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
U.S. Drug Enforcement Administration

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 identification results and associated information from drug cases analyzed by federal, state, and local forensic laboratories. These laboratories analyze substances secured in law enforcement operations across the country and represent an important resource for 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 as well as to inform drug policy and drug enforcement initiatives both nationally and in local communities.

NFLIS is a comprehensive information system that includes data from forensic laboratories that handle over 88% of the nation's estimated 1.2 million annual state and local drug analysis cases. As of April 2006, NFLIS included 42 state systems, 92 local or municipal laboratories, and 1 territorial laboratory, representing a total of 263 individual laboratories. Federal data from the DEA's System To Retrieve Information from Drug Evidence II (STRIDE), which includes the results of drug evidence analyzed at DEA laboratories across the country, is also a part of the NFLIS database. Efforts continue toward recruiting all state and local laboratories, while also integrating the remainder of federal laboratories into the system.

This 2005 Annual Report presents the results of drug cases analyzed by forensic laboratories between January 1, 2005, and December 31, 2005. Section 1 presents national and regional estimates for the 25 most frequently identified drugs, as well as national and regional quarterly trends from 2001 through 2005. National and regional estimates are based on drug analysis data reported among the NFLIS national sample of laboratories (see Appendix A for a list of NFLIS laboratories, including those in the national sample). The remainder of the report presents drug analysis results for all state and local laboratories that reported at least 6 months of data to NFLIS during 2005, as well as federal laboratory data reported in STRIDE. The benefits and limitations of NFLIS are presented in Appendix B.
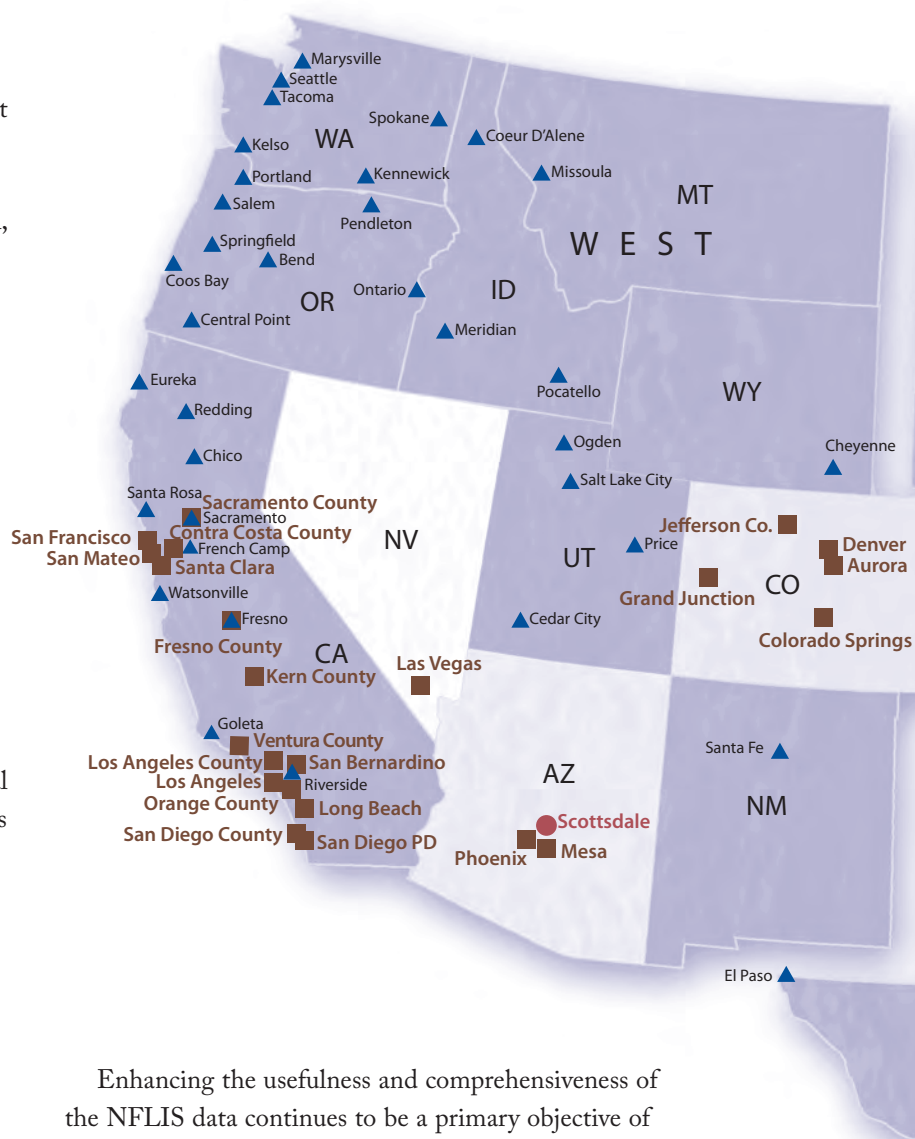
Enhancing the usefulness and comprehensiveness of the NFLIS data continues to be a primary objective of NFLIS. One key enhancement is to provide more detailed geographical information on the drug seizure location. Section 5 presents Geographic Information System (GIS) analysis on drug seizures of cannabis/THC, cocaine, heroin, and methamphetamine, by location, for selected states. NFLIS continually strives to improve the utility of the NFLIS data, as shown by recent enhancements to the NFLIS Interactive Data Site (IDS). Appendix C summarizes these IDS enhancements, including Web accessibility of the IDS to participating laboratories and other approved users, as well as new database query options. NFLIS will continue to be developed and enhanced over the next several years.

NORTHEAST

ME

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DE

HI

AK

PR

Bemidji
Marquette
Wausau
Saint Paul
Saint Paul
Milwaukee
Madison
Grand Rapids
Bridgeport
Grayling
Sterling Heights
Detroit
East Lansing
Northville
Rockford
Westchester
Chicago
Joliet
Lowell
Des Moines
Fort Wayne
Morton
Springfield
Indianapolis
Macon
St. Joseph
Lincoln
North Platte
Topeka
Jefferson City
Great Bend
Hillsboro
Pittsburg
Springfield
Willow Springs
Rapid City

Northern Illinois
DuPage County
Johnson County
Independence
KCMO Regional
Sedgwick County
St. Charles County
St. Louis
St. Louis County
SEMO Regional
MSSU Regional
Indianpolis-Marion County
Columbus PD
Miami Valley
Hamilton County
Toledo
Mansfield PD
Canton-Stark County
Lake County
Allegheny County
Newark PD
Baltimore City
Baltimore County
Montgomery County
Anne Arundel County

Bowling Green
London
Columbus
Richfield
Harrisburg
Greensburg
Media
Wilmington
Sea Girt
Hammonton
Fairfax
Richmond
Norfolk
Roanoke
Highland Heights
Ashland
South Charleston
Frankfort
Louisville
Carbondale
Evansville
Fairview Heights
Madisonville
London
Knoxville
Nashville
Raleigh
Asheville
Cleveland
Columbia
Augusta
Charlotte Mecklenburg
Spartanburg
Charleston

Onondaga County
Monroe County
Niagara County
Erie County
Westchester County
Yonkers
Newark
Union County
Philadelphia
Cape May
Bethlehem
West Trenton
Little Falls
Hudson County
New York City
Suffolk County
Nassau County
Ocean County
Burlington County
Amherst
Wyoming
Erie
Hartford
Sudbury
Boston
University of MA Medical Center, Worcester
Augusta

Memphis
Florence
Little Rock
Batesville
Tupelo
Jackson PD
Jackson
North LA
Southwest LA Lab
Gulfport
Baton Rouge
Mobile
Pensacola
New Orleans
Jefferson Parish
Acadiana
Birmingham
Tuscaloosa
Jacksonville
Huntsville
Trion
Decatur
Macon
Savannah
Auburn
Midland
Montgomary
Dothan
Moultrie
Jacksonville
Daytona Beach
Orlando
Tallahassee
Pinellas County
Tampa
Sarasota County
Fort Myers
Indian River
Broward County
Miami-Dade
Key West

Northwest Region
Oklahoma City
Tahlequah Region
Southwest Region
Durant Region
Amarillo
Lubbock
Fort Worth
Garland
Abilene
Tyler
Midland
Waco
Austin
Houston
Bexar County
Harris County
Pasadena
Brazoria County
Jefferson Co.
Laredo
Corpus Christi
McAllen

Honolulu
Anchorage
San Juan

Reporting State/Territory Lab System

Participating State Lab System (Not Yet Reporting)

No Participating State Lab System

No State Lab System

■ Reporting Local Lab

● Participating Local Lab (Not Yet Reporting)

▲ Individual State/Territory Lab

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 2005. Trends are also presented for selected drugs from 2001 through 2005. The methods used in preparing these estimates are described in Appendix D.

1.1 DRUG ITEMS ANALYZED

In 2005, an estimated 1,749,275 drug items were analyzed by state and local forensic laboratories in the United States. This is a slight increase from the 1,734,658 drug items analyzed during 2004. Table 1.1 presents the 25 most frequently identified drugs for the nation and for census regions.

The top 25 drugs accounted for 94% of all drugs analyzed in 2005, an estimated 1,641,130 items. As in previous years, the vast majority of all drugs reported in NFLIS were identified as the top 4 drugs, with cannabis/THC, cocaine, methamphetamine, and heroin representing 85% of all drugs analyzed. Nationally, 573,904 items were identified as cannabis/THC (33%), 570,176 as cocaine (33%), 247,288 as methamphetamine (14%), and 87,402 as heroin (5%).

Among other drugs in the top 25, more than half are available in pharmaceutical products. Of these, there were seven narcotic analgesics: hydrocodone (23,549 items), oxycodone (19,274 items), methadone (7,302 items), morphine (3,619 items), codeine (3,346 items), propoxyphene (1,970 items), and hydromorphone (1,218 items). Also included were four benzodiazepines: alprazolam (24,631 items), diazepam (6,871 items), clonazepam (6,723 items), and lorazepam (1,557 items). Other controlled substances were phencyclindine (PCP) (3,047 items) and the pharmaceutical methylphenidate (1,370 items). The non-controlled pharmaceutical carisoprodol (3,020 items) as well as pseudoephedrine (8,249 items), a listed chemical, were also included in the top 25 most frequently identified drugs.

LSD microdot

2-CB tablet

LSD blotter

2C-T-2 tablet

MDMA tablet

www.Erowid.org
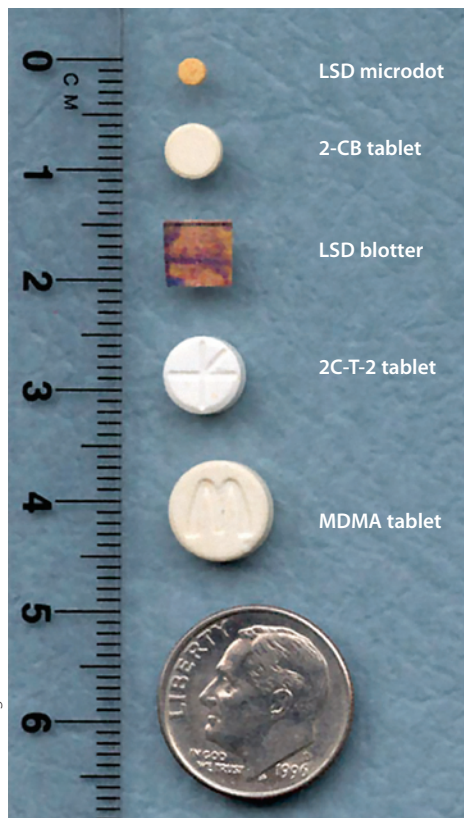
Table 1.1 | NATIONAL AND REGIONAL ESTIMATES FOR THE 25 MOST FREQUENTLY IDENTIFIED DRUGS*
Estimated number and percentage of total analyzed drug items, 2005.

Drug	National Number	National Percent	West Number	West Percent	Midwest Number	Midwest Percent	Northeast Number	Northeast Percent	South Number	South Percent
Cannabis/THC	573,904	32.81%	77,931	21.36%	196,032	45.86%	86,347	31.98%	213,593	31.09%
Cocaine	570,176	32.59%	73,086	20.03%	112,721	26.37%	112,129	41.53%	272,240	39.63%
Methamphetamine	247,288	14.14%	149,080	40.86%	37,915	8.87%	799	0.30%	59,494	8.66%
Heroin	87,402	5.00%	12,842	3.52%	22,274	5.21%	32,320	11.97%	19,965	2.91%
Alprazolam	24,631	1.41%	**	**	5,160	1.21%	3,266	1.21%	14,712	2.14%
Hydrocodone	23,549	1.35%	2,415	0.66%	4,088	0.96%	2,520	0.93%	14,527	2.11%
Non-controlled, non-narcotic drug	20,159	1.15%	3,749	1.03%	7,587	1.77%	3,447	1.28%	5,375	0.78%
Oxycodone	19,274	1.10%	2,555	0.70%	4,524	1.06%	4,518	1.67%	7,677	1.12%
MDMA	13,004	0.74%	3,055	0.84%	2,167	0.51%	1,398	0.52%	6,384	0.93%
Pseudoephedrine***	8,249	0.47%	1,162	0.32%	3,657	0.86%	**	**	3,413	0.50%
Methadone	7,302	0.42%	1,074	0.29%	1,037	0.24%	1,847	0.68%	3,345	0.49%
Diazepam	6,871	0.39%	1,043	0.29%	1,924	0.45%	689	0.26%	3,215	0.47%
Clonazepam	6,723	0.38%	754	0.21%	1,750	0.41%	1,557	0.58%	2,663	0.39%
Acetaminophen****	5,608	0.32%	**	**	2,205	0.52%	**	**	845	0.12%
Morphine	3,619	0.21%	868	0.24%	900	0.21%	613	0.23%	1,238	0.18%
Amphetamine	3,371	0.19%	419	0.11%	1,001	0.23%	363	0.13%	1,588	0.23%
Codeine	3,346	0.19%	559	0.15%	563	0.13%	370	0.14%	1,854	0.27%
Phencyclidine (PCP)	3,047	0.17%	538	0.15%	236	0.06%	1,460	0.54%	813	0.12%
Psilocin	3,028	0.17%	980	0.27%	1,066	0.25%	111	0.04%	871	0.13%
Carisoprodol	3,020	0.17%	**	**	296	0.07%	143	0.05%	1,910	0.28%
Propoxyphene	1,970	0.11%	124	0.03%	868	0.20%	152	0.06%	826	0.12%
Lorazepam	1,557	0.09%	275	0.08%	497	0.12%	208	0.08%	578	0.08%
MDA	1,449	0.08%	287	0.08%	178	0.04%	376	0.14%	608	0.09%
Methylphenidate	1,370	0.08%	217	0.06%	430	0.10%	225	0.08%	498	0.07%
Hydromorphone	1,218	0.07%	215	0.06%	294	0.07%	64	0.02%	644	0.09%
Top 25 Total	1,641,130	93.82%	337,386	92.47%	409,369	95.76%	255,502	94.62%	638,874	93.01%
All Other Analyzed Items	108,145	6.18%	27,470	7.53%	18,125	4.24%	14,517	5.38%	48,034	6.99%
Total Analyzed Items	1,749,275	100.00%	364,856	100.00%	427,494	100.00%	270,019	100.00%	686,908	100.00%

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

MDMA=3,4 Methylenedioxymethamphetamine
MDA=3,4 Methylenedioxyamphetamine

* Sample n's and 95% confidence intervals for all estimates are available upon request.
** The estimate for this drug does not meet standards of precision and reliability due to few laboratories reporting this specific drug.
*** Includes items from a small number of laboratories that do not specify between pseudoephedrine and ephedrine.
****Substance is an ingredient of many controlled pharmaceutical products.

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 for the number 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.

Table 1.2	NATIONAL CASE ESTIMATES *Number and percentage of cases containing the 25 most frequently identified drugs, 2005.*		
Drug		**Number**	**Percent**
Cocaine		451,996	38.72%
Cannabis/THC		434,838	37.25%
Methamphetamine		185,282	15.87%
Heroin		69,225	5.93%
Alprazolam		21,126	1.81%
Hydrocodone		19,379	1.66%
Oxycodone		15,577	1.33%
Non-controlled, non-narcotic drug		15,207	1.30%
MDMA		10,714	0.92%
Methadone		6,342	0.54%
Diazepam		6,125	0.52%
Clonazepam		6,014	0.52%
Pseudoephedrine*		5,628	0.48%
Acetaminophen**		4,869	0.42%
Morphine		3,044	0.26%
Amphetamine		2,951	0.25%
Carisoprodol		2,805	0.24%
Phencyclidine (PCP)		2,792	0.24%
Codeine		2,785	0.24%
Psilocin		2,642	0.23%
Propoxyphene		1,894	0.16%
Lorazepam		1,426	0.12%
MDA		1,307	0.11%
Methylphenidate		1,236	0.11%
Dihydrocodeine		1,170	0.10%
Top 25 Total		1,276,372	109.34%
All Other Substances		87,165	7.47%
Total All Substances		1,363,537	116.81%***

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

** *Substance is an ingredient of many controlled pharmaceutical products.*

*** *Multiple drugs can be reported within a single case, so the cumulative percentage exceeds 100%. The estimated national total of distinct cases that drug case percentages are based on is 1,167,307.*

Cocaine was the most common drug reported in a laboratory drug case during 2005. Nationally, an estimated 39% of analyzed drug cases contained one or more cocaine items, followed by cannabis/THC, which was identified in 37% of all drug cases. About 16% of drug cases were estimated to have contained one or more methamphetamine items, and 6% of cases contained one or more heroin items. About 2% of cases contained one or more alprazolam or hydrocodone items, while oxycodone and MDMA were reported in about 1% of drug cases.

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 obtained in the United States.

During 2005, a total of 51,467 drug exhibits or items were reported in STRIDE, about 3% of the estimated 1.7 million drug exhibits analyzed by state and local laboratories during this period. Most drugs in STRIDE were identified as cocaine (34%), cannabis/THC (27%), methamphetamine (12%), or heroin (9%). Among other drugs, 3% were reported as MDMA and 2% as pseudoephedrine.

MOST FREQUENTLY IDENTIFIED DRUGS IN STRIDE, 2005

Drug	Number	Percent
Cocaine	17,506	34.01%
Cannabis/THC	13,706	26.63%
Methamphetamine	6,356	12.35%
Heroin	4,429	8.61%
MDMA	1,612	3.13%
Non-controlled, non-narcotic drug	1,013	1.97%
Pseudoephedrine	851	1.65%
Hydrocodone	591	1.15%
Alprazolam	423	0.82%
Oxycodone	316	0.61%
All Other Drugs	4,664	9.06%
Total All Drugs	51,467	100.00%

1.3 NATIONAL AND REGIONAL DRUG TRENDS

National drug trends

Figure 1.1 presents national trends for the number of drug items analyzed by state and local laboratories in 3-month increments for 2001 through 2005 for the top four drugs reported in NFLIS. While these data may describe trafficking and abuse patterns, they may also reflect differing drug enforcement priorities and laboratory policies.

Overall, among the top four drugs, there was a decrease in total analyzed items between 2001 and 2005 from 457,967 items during the 1st quarter of 2001 to 436,769 items during the 4th quarter of 2005. Among the top four reported drugs, cannabis/THC and heroin items declined significantly across the quarters from 2001 to 2005 (α = .05). Reports of cannabis/THC declined from 161,343 items to 140,974 items, while heroin decreased from 26,750 items to 20,939 items (Figure 1.1). Reports of methamphetamine increased significantly across the quarters, from 52,674 items to 62,971 items.

Figure 1.1 National estimates for the top four drugs by quarter, 2001–2005.
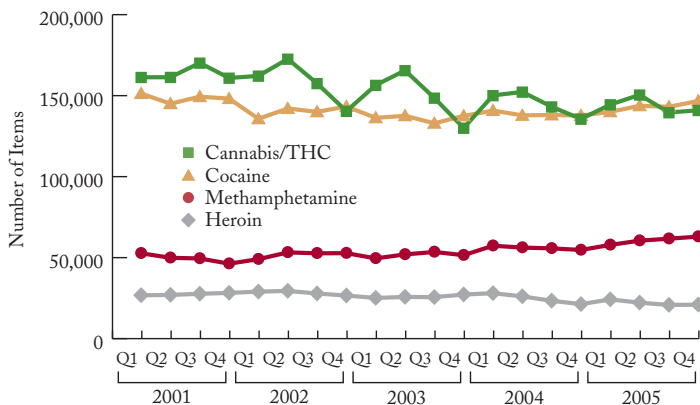
Figure 1.2 describes national reporting trends for selected drugs: MDMA, alprazolam, oxycodone, and hydrocodone. Among these drugs, reports of MDMA experienced a significant decrease (from 5,427 items to 3,396 items). Reports of oxycodone and hydrocodone experienced significant increases. Oxycodone reporting increased from 2,771 items in the 1st quarter of 2001 to 4,892 items in the 4th quarter of 2005. Hydrocodone reporting increased from 2,742 items to 6,182.

Figure 1.2 National estimates for other selected drugs by quarter, 2001–2005.
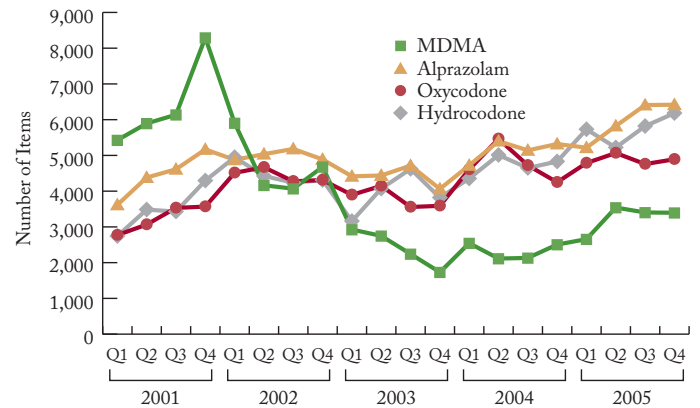
Regional drug trends

Figure 1.3 presents regional trends per 100,000 persons aged 15 or older for the top four reported drugs. This illustrates changes in drugs reported over time, taking into account the population of each region.

Cannabis/THC reporting declined significantly in the South and Midwest (α = .05). Overall, the highest rate of cannabis/THC continues to be reported in the Midwest, followed by the South and the Northeast. In the South, reports of cocaine also declined significantly over the 5-year period. Methamphetamine reporting significantly increased in the Northeast and the South. The rate of methamphetamine items reported in the South more than doubled, from 8 to 20 items per 100,000 persons (6,534 items to 15,631 items).

Figure 1.4 shows regional trends per 100,000 persons aged 15 or older for other selected drugs—hydrocodone, oxycodone, MDMA, and alprazolam—from January 2001 through December 2005. Reports of MDMA declined significantly across all census regions, and reports of oxycodone increased significantly in the West, the Midwest, and the Northeast (α = .05). In the Northeast, the reported rate of oxycodone items analyzed more than doubled, from 1.5 to 3.1 per 100,000 (636 items to 1,308 items). Reports of hydrocodone increased significantly in the Northeast (from 0.3 to 1.2 per 100,000 persons), the Midwest (from 0.7 to 2.2 items per 100,000), and the South (from 2.3 to 5.0 items per 100,000 persons). Reports of alprazolam increased significantly in the Northeast (from 1.3 to 2.2 items per 100,000 persons) and the Midwest (from 0.9 to 2.6 items per 100,000 persons).

Figure 1.3 Trends in the top four drugs reported per 100,000 persons 15 or older, January 2001–December 2005.*
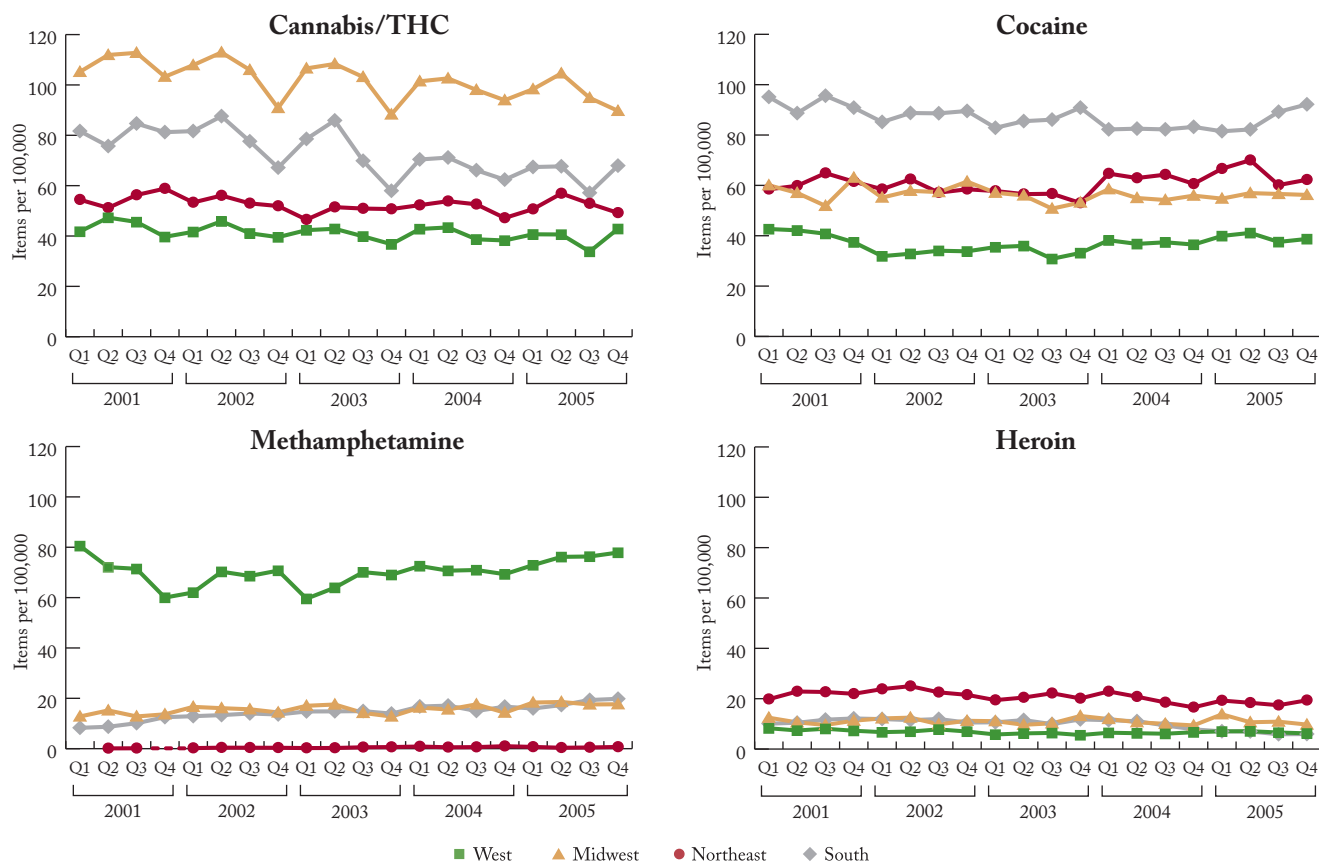
*A dashed line implies unstable estimates due to few laboratories in the region reporting this specific drug.

Figure 1.4 Trends in other selected drugs reported per 100,000 persons 15 or older, January 2001–December 2005.*
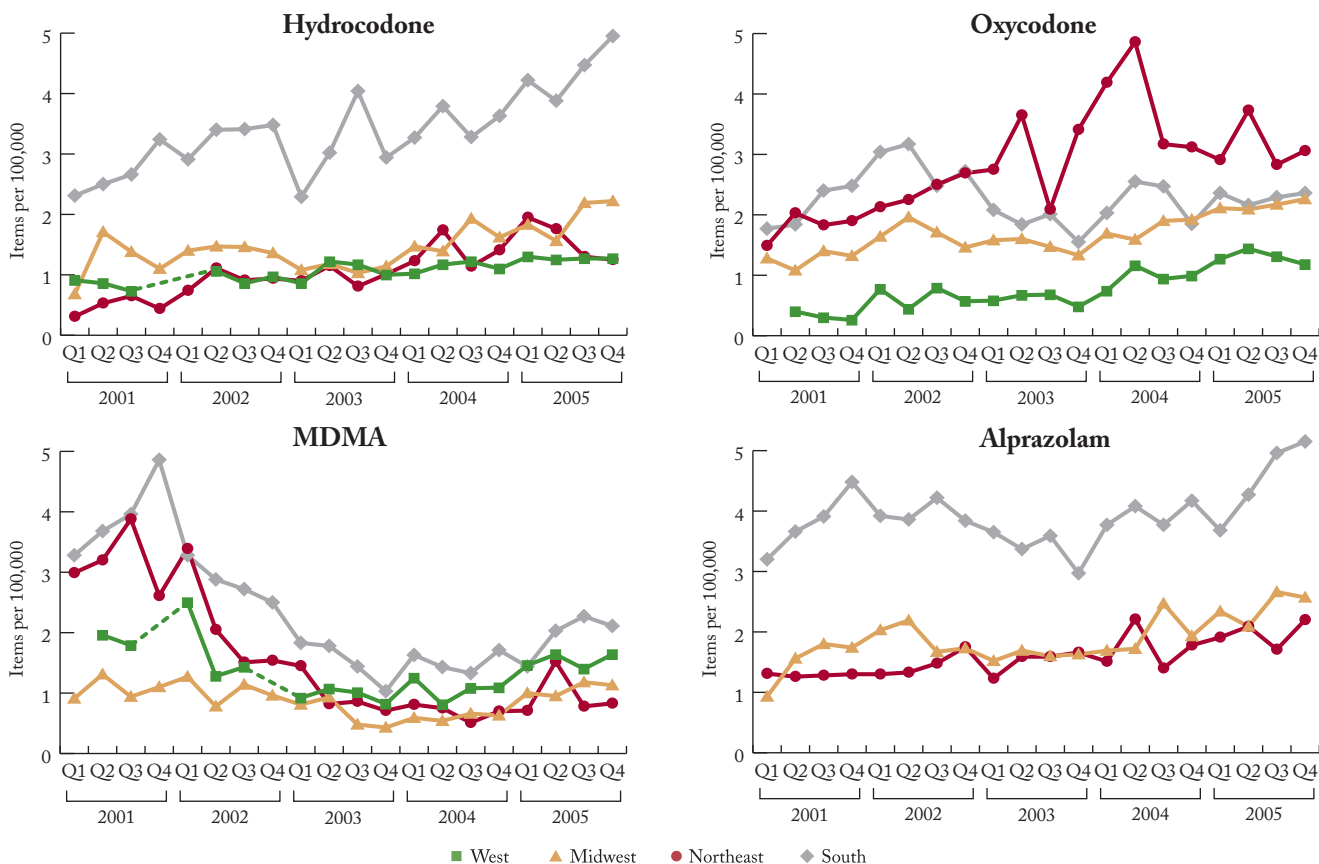
*A dashed line or the absence of a trend line implies unstable estimates due to few laboratories in the region reporting this specific drug.

MAJOR DRUG CATEGORIES

Section 2 presents analytic results for major drug categories reported by NFLIS laboratories during 2005. 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 present data reported by *all NFLIS laboratories* that reported 6 or more months of data during 2005. During 2005, NFLIS laboratories analyzed a total of 1,401,432 drug items.

Fentanyl

www.Erowid.org

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[1] Substance Abuse and Mental Health Services Administration, Office of Applied Studies. *Results from the 2005 National Survey on Drug Use and Health: National Findings* (DHHS Publication No. SMA 06-4194, NSDUH Series H-30). Rockville, MD, 2006.

2.1 NARCOTIC ANALGESICS

Narcotic analgesics are pain relievers available by prescription. According to the 2005 National Survey on Drug Use and Health (NSDUH), approximately 5% of persons aged 12 or older, or 11.8 million, used pain relievers in the past year for non-medical reasons. Among adolescents aged 12 to 17, an estimated 7%, or 1.7 million, reported such use during the past year.[1]

A total of 51,432 narcotic analgesics were identified by NFLIS laboratories in 2005, representing nearly 4% of all items analyzed (Table 2.1). Hydrocodone (39%) and oxycodone (30%) accounted for the majority of all narcotic analgesics reported. The following drugs made up more than one-quarter of narcotic analgesics: methadone (11%), morphine (6%), codeine (5%), propoxyphene (3%), dihydrocodeine (2%), and hydromorphone (2%).

Table 2.1	NARCOTIC ANALGESICS *Number and percentage of identified narcotic analgesics, 2005.*	
Analgesics	**Number**	**Percent**
Hydrocodone	19,893	38.68%
Oxycodone	15,463	30.06%
Methadone	5,425	10.55%
Morphine	2,957	5.75%
Codeine	2,458	4.78%
Propoxyphene	1,497	2.91%
Dihydrocodeine	1,151	2.24%
Hydromorphone	1,011	1.97%
Tramadol*	490	0.95%
Buprenorphine	446	0.87%
Fentanyl	285	0.55%
Meperidine	253	0.49%
Pentazocine	74	0.14%
Oxymorphone	14	0.03%
Nalbuphine*	11	0.02%
Butorphanol	4	0.01%
Total Narcotic Analgesics	51,432	100.00%
Total Items Analyzed	1,401,432	

Non-controlled substance.

Figure 2.1 Distribution of narcotic analgesics within region, 2005.

	West	Midwest	Northeast	South	
Total Number	5,890	11,213	7,082	27,247	51,432
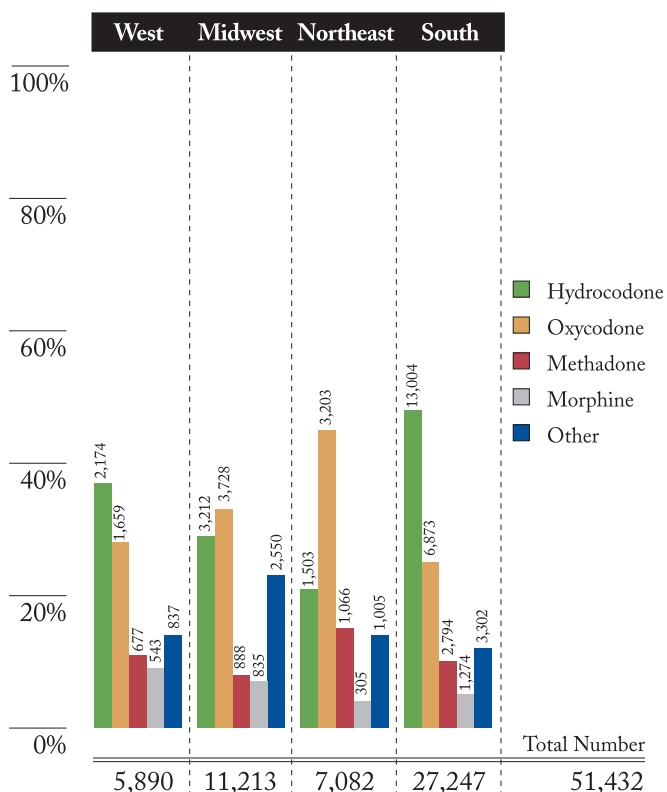
During 2005, differences were found in the types of analgesics reported by region (Figure 2.1). The highest percentages of hydrocodone were reported in the South (48%) and West (37%). Oxycodone represented 45% of analgesics reported in the Northeast, compared to 33% in the Midwest, 28% in the West, and 25% in the South. The Northeast also reported the highest relative percentage of methadone (15%), while the West reported the highest percentage of morphine (9%).

2.2 BENZODIAZEPINES

Benzodiazepines are used therapeutically to produce sedation, induce sleep, relieve anxiety and muscle spasms, and prevent seizures. Benzodiazepine abuse is often associated with young adults and adolescents who take benzodiazepines to get "high."[2]

During 2005, a little more than 2% of all analyzed drugs, or 33,834 items, were identified as benzodiazepines in NFLIS (Table 2.2). Alprazolam (e.g., Xanax) accounted for 61% of reported benzodiazepines. Approximately 17% of benzodiazepines were identified as diazepam, and 16% were identified as clonazepam.

More than half of benzodiazepines reported in the South (68%), Northeast (58%), and Midwest (53%) were identified as alprazolam (Figure 2.2). Diazepam accounted for nearly one-third of benzodiazepines identified in the West and more than one-fifth of those identified in the Midwest. A quarter or more of items identified in the West and Northeast were identified as clonazepam.

Table 2.2	**BENZODIAZEPINES** *Number and percentage of identified benzodiazepines, 2005.*	
Benzodiazepines	**Number**	**Percent**
Alprazolam	20,744	61.31%
Diazepam	5,817	17.19%
Clonazepam	5,494	16.24%
Lorazepam	1,329	3.93%
Temazepam	258	0.76%
Chlordiazepoxide	102	0.30%
Triazolam	59	0.17%
Flunitrazepam	20	0.06%
Midazolam	11	0.03%
Total Benzodiazepines	33,834	100.00%
Total Items Analyzed	1,401,432	

Figure 2.2 Distribution of benzodiazepines within region, 2005.

	West	Midwest	Northeast	South	
Total Number	2,245	7,038	4,794	19,757	33,834
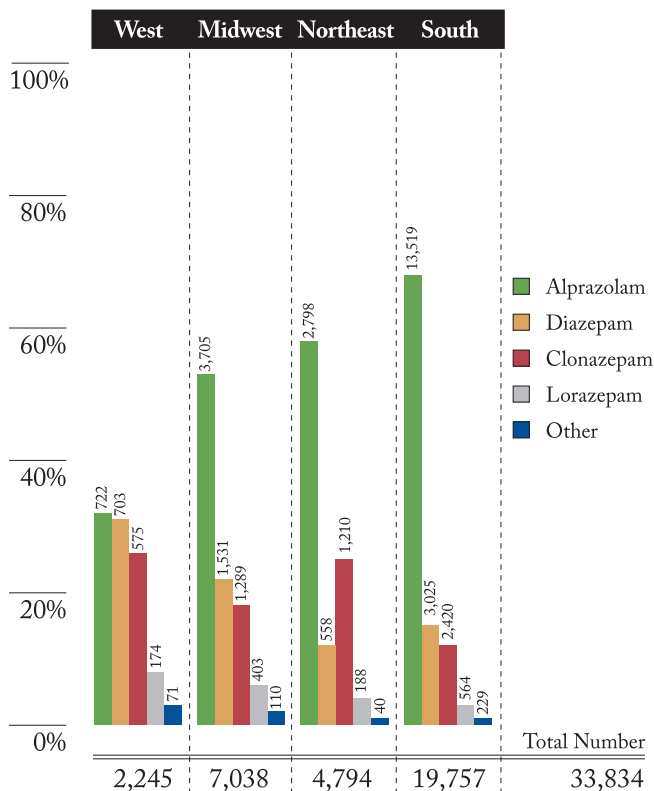
[2] Drug Enforcement Administration. *Drugs of Abuse. (2005).*

2.3 CLUB DRUGS

MDMA, ketamine, and GHB/GBL are the most common club drugs. The abuse of MDMA, also known as Ecstasy, has declined in recent years. However, according to the 2005 Monitoring the Future Survey, an estimated 5% of 12th grade, 4% of 10th grade, and 3% of 8th grade students used MDMA during their lifetimes.[3]

In NFLIS, 12,473 club drugs were identified in 2005 (Table 2.3). Of these, 84% were identified as MDMA. Among the other club drugs reported, 9% were identified as MDA, 4% as ketamine, and 3% as GHB/GBL.

As shown in Figure 2.3, MDMA constitutes the highest percentages for each region, representing 87% of club drugs in the West, 87% in the Midwest, 86% in the South, and 65% in the Northeast. The Northeast continues to report the highest percentages of MDA (19%) and ketamine (14%).

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[3] Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2006). *Monitoring the Future national survey results on drug use, 1975–2005. Volume I: Secondary school students* (NIH Publication No. 06-5883). Bethesda, MD: National Institute on Drug Abuse.

Figure 2.3 Distribution of club drugs within region, 2005.

Region	Total Number
West	2,473
Midwest	2,505
Northeast	1,698
South	5,797
Total	12,473
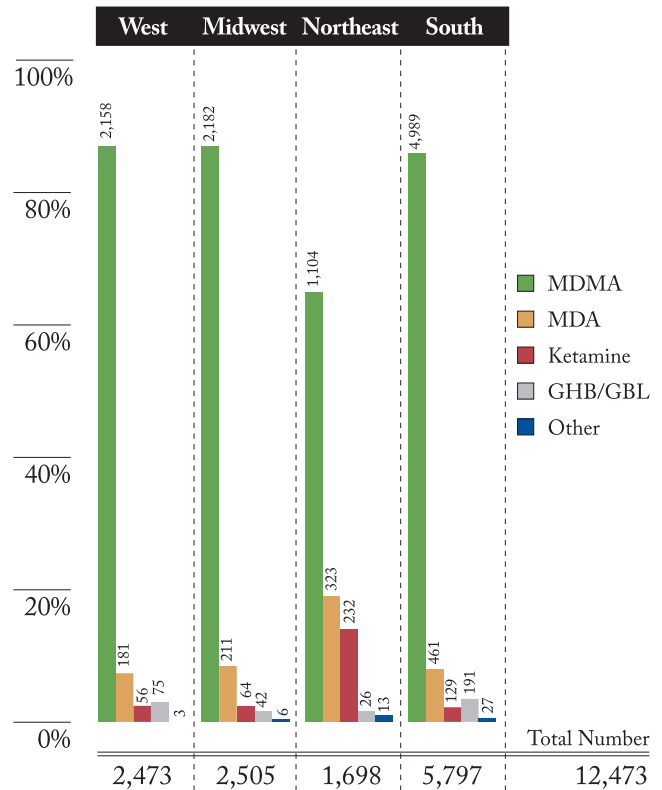
Table 2.3	CLUB DRUGS
	Number and percentage of identified club drugs, 2005.

Club Drug	Number	Percent
MDMA	10,433	83.64%
MDA	1,176	9.43%
Ketamine	481	3.86%
GHB/GBL	334	2.68%
MDEA	31	0.25%
5-MeO-DIPT	9	0.07%
BZP	3	0.02%
AMT	3	0.02%
PMA	2	0.02%
TFMPP*	1	0.01%
Total Club Drugs	12,473	100.00%
Total Items Analyzed	1,401,432	

*Non-controlled substance.

GHB/GBL=gamma-hydroxybutyrate or gamma-butyrolactone
MDEA=N-ethyl-3,4-methylenedioxyamphetamine
5-MeO-DIPT=5-Methoxy-N,N-diisopropyltryptamine
BZP=1-Benzylpiperazine
AMT=Alpha-Methyltryptamine
PMA=Paramethoxyamphetamine
TFMPP=1-(3-Trifluormethyphenyl) piperazine

Ketamine

www.Erowid.org

2.4 ANABOLIC STEROIDS

While anabolic steroids are legally available in the United States by prescription, many users obtain the steroids illegally through production in clandestine laboratories, smuggling from other countries, or diversion from U.S. pharmacies. The 2005 Monitoring the Future Study shows a significant decline in past year steroid use among 12th grade students, from 2.5% in 2004 to 1.5% in 2005. However, past year steroid use remained relatively the same from 2004 to 2005 among 8th and 10th grade students.[3]

During 2005, a total of 1,728 items were identified as anabolic steroids (Table 2.4). In NFLIS, the most commonly identified anabolic steroid was testosterone (38%), followed by methandrostenolone (17%), nandrolone (13%), and stenozolol (12%). Approximately 44% of items in the Midwest and South, 31% in the West, and 28% in the Northeast were identified as testosterone (Figure 2.4). Slightly less than one-fifth of items across all census regions were identified as methandrostenolone.

Figure 2.4 Distribution of anabolic steroids within region, 2005.
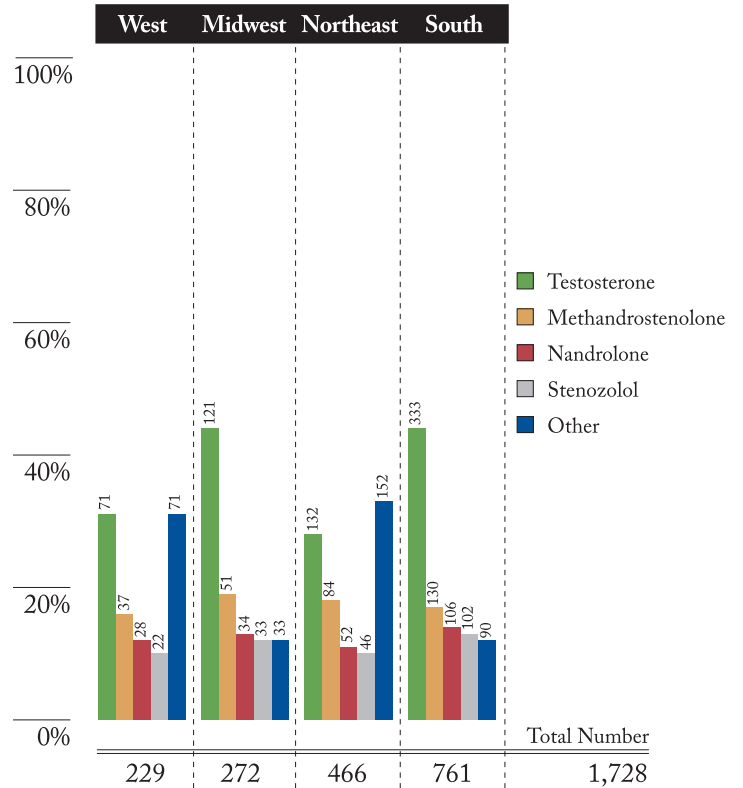
Table 2.4	ANABOLIC STEROIDS
	Number and percentage of identified anabolic steroids, 2005.

Steroids	Number	Percent
Testosterone	657	38.02%
Methandrostenolone	302	17.48%
Nandrolone	220	12.73%
Stenozolol	203	11.75%
Anabolic steroids, not specified	113	6.54%
Boldenone	71	4.11%
Oxymetholone	63	3.65%
Oxandrolone	52	3.01%
Mesterolone	17	0.98%
Methenolone	9	0.52%
Methyltestosterone	9	0.52%
Methandriol	4	0.23%
Drostanolone	3	0.17%
Fluoxymesterone	3	0.17%
Androstene dione*	2	0.12%
Total Anabolic Steroids	1,728	100.00%
Total Items Analyzed	1,401,432	

*Non-controlled substance.

Steroids

2.5 Stimulants

Methamphetamine is a highly addictive stimulant. The number of methamphetamine laboratories seized by law enforcement agencies increased by 25% between 2001 and 2004.[4] Stimulants, including methamphetamine and amphetamine, were involved in 42,538 emergency department (ED) visits, accounting for about 7% of all drug-related ED visits during the last two quarters of 2003.[5]

A total of 230,769 stimulants were identified in NFLIS during 2005, accounting for about 16% of all items reported (Table 2.5). An estimated 97% of stimulants, or 224,605 items, were identified as methamphetamine. An additional 2,888 items were identified as amphetamine, and 1,468 as methylphenidate.

Methamphetamine accounted for more than 9 out of 10 stimulants reported in the West, Midwest, and South, and for almost 6 out of 10 stimulants reported in the Northeast (Figure 2.5). In the Northeast, 24% of stimulants were reported as amphetamine and 12% as methylphenidate.

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[4] El Paso Intelligence Center's (EPIC's) Clandestine Laboratory Seizure System (CLSS). (2005).

[5] Substance Abuse and Mental Health Services Administration, Office of Applied Studies. *Drug Abuse Warning Network, 2003: Interim National Estimates of Drug-Related Emergency Department Visits.* DAWN Series D-26, DHHS Publication No. (SMA) 04-3972. Rockville, MD, 2004.

Figure 2.5 Distribution of stimulants within region, 2005.
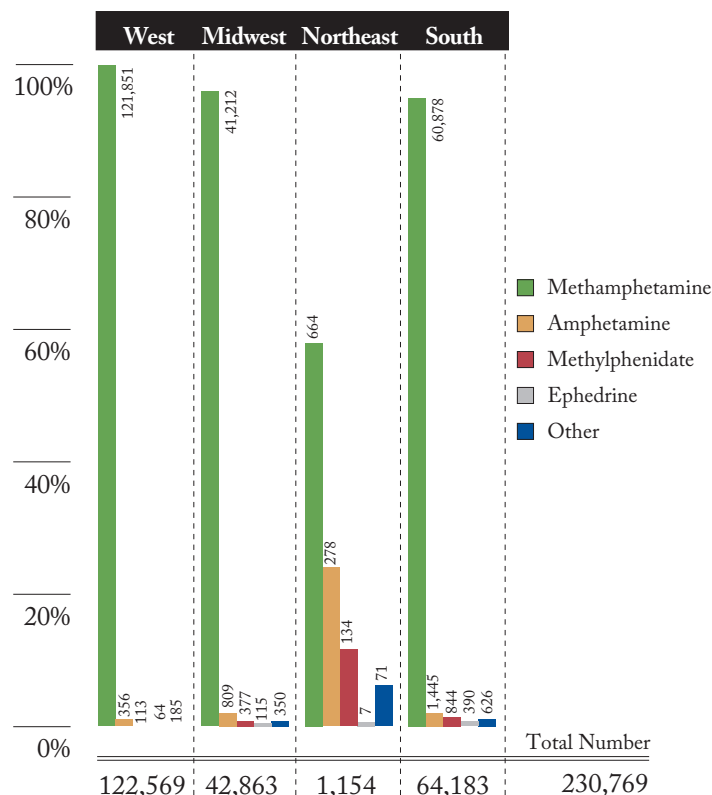
| Table 2.5 | STIMULANTS
Number and percentage of identified stimulants, 2005. |

Stimulants	Number	Percent
Methamphetamine	224,605	97.33%
Amphetamine	2,888	1.25%
Methylphenidate	1,468	0.64%
Ephedrine*	576	0.25%
Phentermine	437	0.19%
Caffeine**	437	0.19%
N,N-dimethylamphetamine	79	0.03%
Cathinone	69	0.03%
Phendimetrazine	51	0.02%
Benzphetamine	43	0.02%
Cathine	26	0.01%
Methcathinone	21	0.01%
Modafinil	17	0.01%
Diethylpropion	11	0.00%
Pemoline	10	0.00%
Phenylpropanolamine*	7	0.00%
Clobenzorex	4	0.00%
Propylhexedrine	4	0.00%
Chlorphentermine	3	0.00%
Fenproporex	3	0.00%
Phenmetrazine	3	0.00%
Fenfluramine	2	0.00%
Sibutramine	2	0.00%
Aminorex	1	0.00%
Mazindol	1	0.00%
Mefenorex	1	0.00%
Total Stimulants	230,769	100.00%
Total Items Analyzed	1,401,432	

* *Listed chemical.*

** *Substance is an ingredient of many controlled pharmaceutical products and is often used as a cutting agent for illicit drugs.*

DRUG COMBINATIONS

In addition to tracking the types of substances identified by state and local forensic laboratories, another important function of NFLIS is the system's ability to capture information on drug combinations or multiple substances reported within a single drug item. Combinations reported in NFLIS are both mixtures of substances and separately packaged substances within the same item or exhibit.

Taking multiple drugs simultaneously or mixing substances can be deadly. The typical drug misuse death reported as part of the 2003 Drug Abuse Warning Network (DAWN) involved two or more drugs. Cocaine with opiates/opioids was the most common illicit drug combination involving death.[6]

During 2005, 19,560 items identified in NFLIS, about 1% of all reported items, contained two or more substances (Figure 3.1). The five most common combinations in 2005—cannabis/THC and cocaine (8%), methamphetamine and MDMA (7%), cocaine and heroin (7%), methamphetamine and dimethylsulfone (6%), and methamphetamine and ephedrine/pseudoephedrine (4%)—accounted for nearly one-third of all combinations reported.

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[6] Substance Abuse and Mental Health Services Administration, Office of Applied Studies. *Drug Abuse Warning Network, 2003: Area Profiles of Drug-Related Mortality.* DAWN Series D-27, DHHS Publication No. (SMA) 05-4023. Rockville, MD, 2005.

Figure 3.1 Distribution of drug combinations, 2005.

Cannabis/THC and cocaine (8%)
Methamphetamine and MDMA (7%)
Cocaine and heroin (7%)
Methamphetamine and dimethylsulfone (6%)
Methamphetamine and ephedrine/pseudoephedrine (4%)
Methamphetamine and cocaine (3%)
Methamphetamine and cannabis/THC (3%)
Heroin and procaine (3%)
Methamphetamine and amphetamine (2%)
Other combinations (58%)
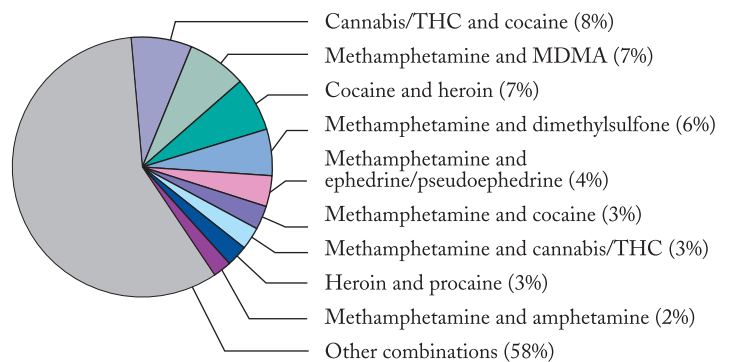
Drug combinations reported in STRIDE, 2005

A total of 17,045 drug combinations, or 33% of all drugs, were reported in STRIDE during 2005. STRIDE collects results of drug evidence analyzed at DEA laboratories across the county. The most common combination identified was methamphetamine and dimethysulfone, which accounted for 6% of all combinations reported. Many of the other most frequently reported combinations included excipients used to dilute or adulterate either cocaine or heroin, including cocaine and procaine (2%), cocaine and sodium bicarbonate (2%), heroin and caffeine (2%), and cocaine and caffeine (2%). MDMA was reported in combination with methamphetamine in approximately 2% of all combinations.

3.1 COCAINE COMBINATIONS

Cocaine, including powder and crack cocaine, was present in 24% of all drug combinations reported during 2005 (Table 3.1). The most common cocaine combination contained cannabis/THC (8%). Cocaine/heroin, which is often referred to as a "speedball," represented nearly 7% of cocaine combinations, and cocaine/methamphetamine represented about 3%. Many of the other cocaine-related combinations included excipients used to dilute cocaine. These included non-controlled substances such as procaine (a local anesthetic), inositol, caffeine, boric acid, benzocaine, and lactose.

3.2 HEROIN COMBINATIONS

Heroin was present in 15% of all drug combinations, or 2,899 items, reported in 2005 (Table 3.2). Almost one-half of the heroin combinations were reported as heroin/cocaine. Among the other substances combined with heroin, many were excipients designed to dilute or adulterate heroin, including procaine, caffeine, mannitol, lidocaine, inositol, and lactose.

3.3 METHAMPHETAMINE COMBINATIONS

Methamphetamine was present in a total of 6,012 items, or in about 31% of all drug combinations (Table 3.3). Methamphetamine/MDMA (1,446 items), methamphetamine/dimethylsulfone (1,131 items), methamphetamine/ephedrine or pseudoephedrine (752 items), methamphetamine/cocaine (577 items), and methamphetamine/cannabis (548 items) were the most commonly reported combinations. MDMA was reported in 7% of methamphetamine combinations, up from 5% in 2004.

Table 3.1 COCAINE COMBINATIONS
Items identified as cocaine combinations, 2005.

Substance One	Substance Two	Number	Percent
Cocaine	Cannabis/THC	1,478	7.56%
Cocaine	Heroin	1,316	6.73%
Cocaine	Methamphetamine	577	2.95%
Cocaine	Procaine	395	2.02%
Cocaine	Inositol	251	1.28%
Cocaine	Caffeine	90	0.46%
Cocaine	Boric Acid	83	0.42%
Cocaine	Oxycodone	59	0.30%
Cocaine	Benzocaine	45	0.23%
Cocaine	Lactose	44	0.22%
Other cocaine combinations		345	1.76%
Total Cocaine Combinations		4,683	23.94%
All Combinations		19,560	100.00%

Table 3.2 HEROIN COMBINATIONS
Items identified as heroin combinations, 2005.

Substance One	Substance Two	Number	Percent
Heroin	Cocaine	1,316	6.73%
Heroin	Procaine	519	2.65%
Heroin	Cannabis/THC	176	0.90%
Heroin	Caffeine	146	0.75%
Heroin	Mannitol	144	0.74%
Heroin	Lidocaine	86	0.44%
Heroin	Methamphetamine	74	0.38%
Heroin	Diphenhydramine	55	0.28%
Heroin	Inositol	29	0.15%
Heroin	Lactose	26	0.13%
Other heroin combinations		328	1.68%
Total Heroin Combinations		2,899	14.82%
All Combinations		19,560	100.00%

Table 3.3 METHAMPHETAMINE COMBINATIONS
Items identified as methamphetamine combinations, 2005.

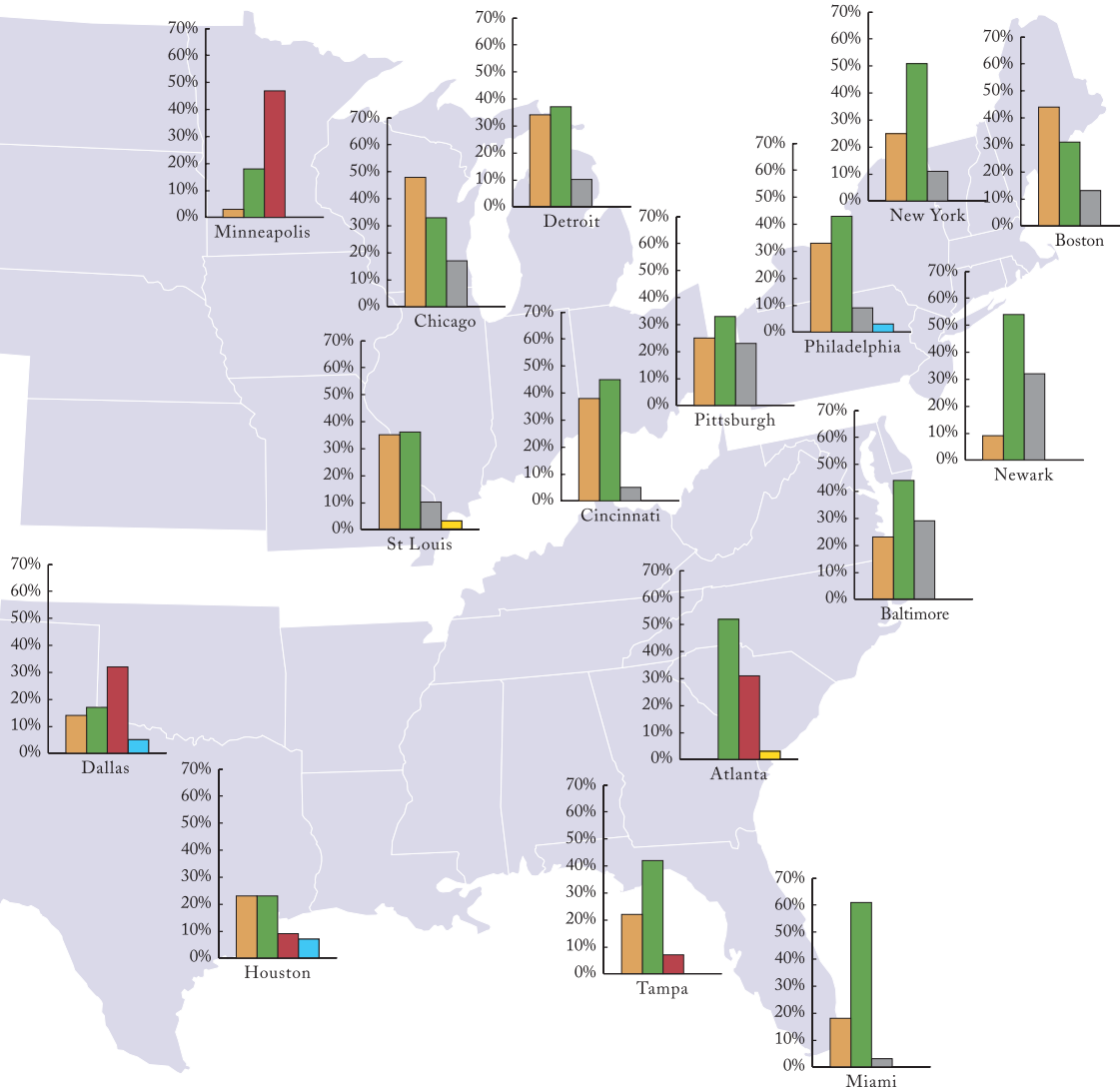| Substance One	Substance Two	Number	Percent
Methamphetamine	MDMA	1,446	7.39%
Methamphetamine	Dimethylsulfone	1,131	5.78%
Methamphetamine	Ephedrine/Pseudoephedrine	752	3.84%
Methamphetamine	Cocaine	577	2.95%
Methamphetamine	Cannabis/THC	548	2.80%
Methamphetamine	Amphetamine	448	2.29%
Methamphetamine	MDA	151	0.77%
Methamphetamine	Heroin	74	0.38%
Methamphetamine	Chlorpheniramine	72	0.37%
Methamphetamine	Caffeine	68	0.35%
Other methamphetamine combinations		745	3.81%
Total Methamphetamine Combinations		6,012	30.74%
All Combinations		19,560	100.00%

DRUGS IDENTIFIED

NFLIS can be used to monitor and analyze drugs reported by forensic laboratories across the country, including large U.S. cities. The drug analysis results presented in this section were reported during 2005 by NFLIS laboratories in selected large cities.

Legend:
- Cannabis/THC
- Cocaine
- Methamphetamine
- Heroin
- Alprazolam
- MDMA
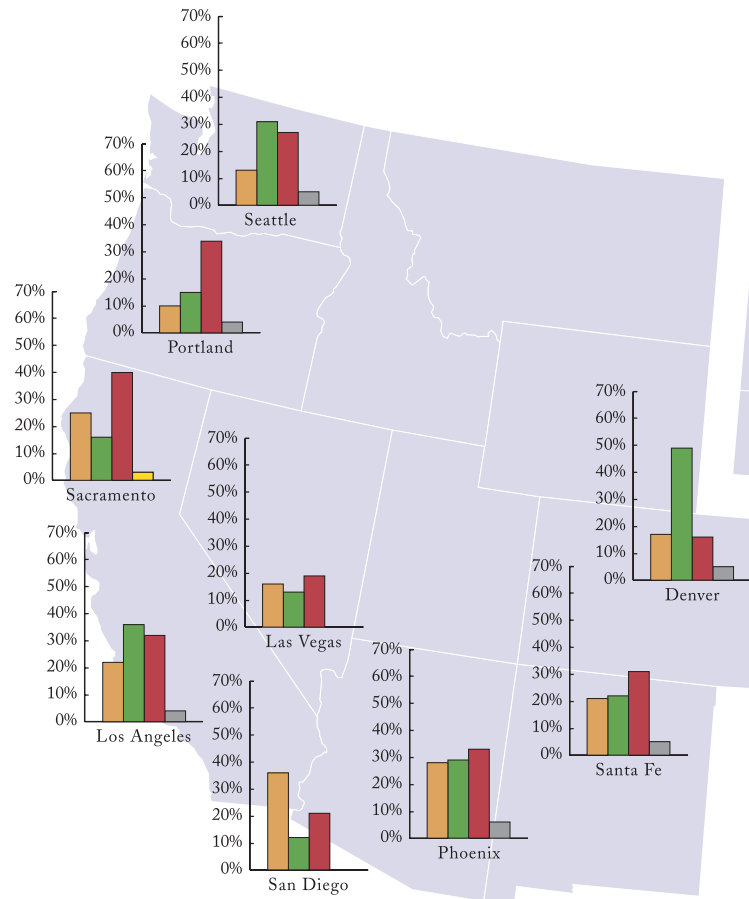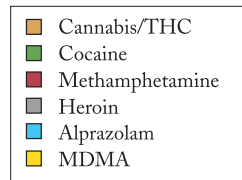
The types of drugs reported vary across regions of the country. The following results highlight geographic differences in the types of drugs abused and trafficked, such as the higher levels of reporting methamphetamine on the West Coast and cocaine on the East Coast. This analysis presents 2005 data for the four most common drugs reported by NFLIS laboratories in selected locations. Drugs reported 2% or less are not presented even if they were one of the top four drugs for a selected location.

East Coast cities such as the following reported the highest relative percentages of cocaine: Miami (61%), Newark (54%), Atlanta (52%), New York City (51%), Baltimore (44%), Philadelphia (44%), and Tampa (42%). Denver (49%) and Cincinnati (45%) also reported a high percentage of drugs identified as cocaine. Nationally, 33% of all drugs were identified as cocaine. The highest percentages of methamphetamine were reported in cities located in the Midwest and West, such as

BY LOCATION

Chart locations showing drug percentages (0%–70%) for: Minneapolis, Chicago, Detroit, New York, Boston, St Louis, Cincinnati, Pittsburgh, Philadelphia, Newark, Dallas, Houston, Baltimore, Atlanta, Tampa, Miami.

Minneapolis (47%), Sacramento (40%), Portland (34%), Phoenix (33%), Los Angeles (32%), Dallas (32%), and Santa Fe (31%). Nationally, 13% of drugs were identified as methamphetamine. High percentages of heroin were reported in Northeastern cities, such as Newark (32%), Baltimore (29%), Pittsburgh (23%), Boston (13%), New York City (11%), and Philadelphia (9%), although Chicago (17%), Detroit (10%), and St. Louis (10%) also reported heroin at a rate higher than the national average of 5%. Cannabis/THC reporting did not show the same type of patterns with respect to regions, with Chicago (48%), Boston (44%), Cincinnati (38%), San Diego (36%), St. Louis (35%), and Detroit (34%) reporting cannabis/THC at a higher rate than the national average of 33%.

Lab locations include:

Atlanta (Georgia Bureau of Investigation—Decatur Laboratory)

Baltimore (Baltimore City Police Department)

Boston (Massachusetts Department of Public Health—Boston 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)

Houston (Harris County Medical Examiner's Office)

Las Vegas (Las Vegas Police Department)

Los Angeles (Los Angeles Police Department and Los Angeles County Sheriff's Department)

Miami (Miami-Dade Police Department Crime Laboratory)

Minneapolis (Minnesota Bureau of Criminal Apprehension—Minneapolis Laboratory)

Newark (Newark Police Department)

New York City (New York City Police Department Crime Laboratory)

Philadelphia (Philadelphia Police Department Forensic Science Laboratory)

Phoenix (Phoenix Police Department)

Pittsburgh (Allegheny County Coroner's Office)

Portland (Oregon State Police Forensic Services Division—Portland Laboratory)

Sacramento (Sacramento County District Attorney's Office)

Seattle (Washington State Patrol Crime Laboratory—Seattle Laboratory)

St. Louis (St. Louis Police Department Crime Laboratory)

San Diego (San Diego Police Department Crime Laboratory)

Santa Fe (New Mexico Department of Public Safety)

Tampa (Florida Department of Law Enforcement—Tampa)

GIS ANALYSIS: TOP FOUR DRUGS, BY P

One of the new features of NFLIS is the ability to analyze and monitor variations in drugs reported by laboratories by the county of origin. This is part of the larger initiative to use geographic information system (GIS) analyses in providing more detailed geographical information on drug seizure location.

This section presents 2005 data at the state and county levels for the percentage of analyzed drug items identified as one of the top four drugs. The GIS analysis is 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 the 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. However, these data can serve as an important source for identifying abuse and trafficking trends and patterns across and within states.

Figure 5.1 Percentage of analyzed drug items identified as cannabis/THC, by state, 2005.

Percent/State

- 35.0–56.0
- 25.0–34.9
- 17.0–24.9
- 10.0–16.9
- 0.0–9.9
- No Data
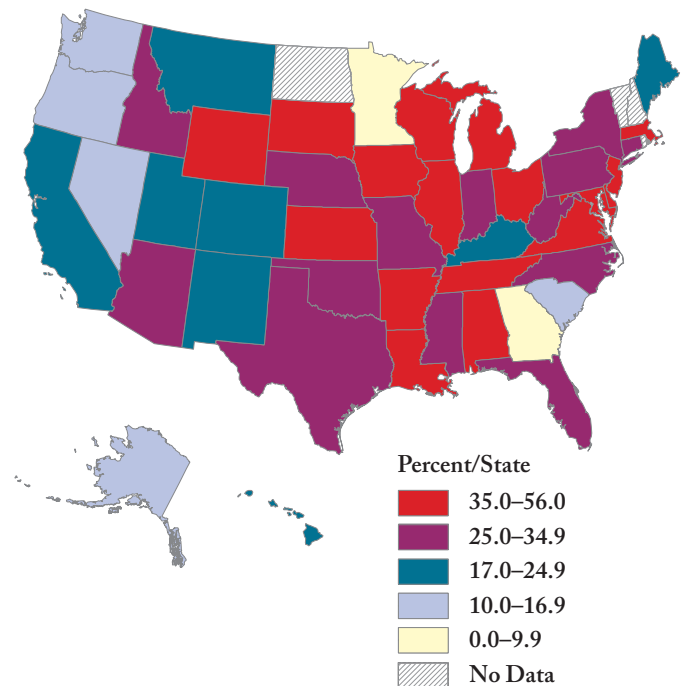
Figure 5.2 Percentage of analyzed drug items identified as methamphetamine, by state, 2005.

Percent/State

- 25.0–62.0
- 17.0–24.9
- 6.0–16.9
- 2.0–5.9
- 0.0–1.9
- No Data
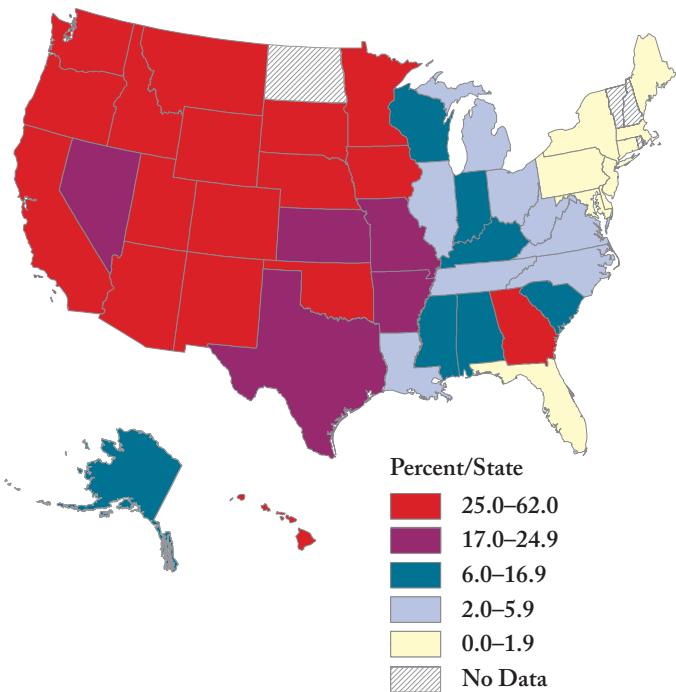
Figure 5.3 Percentage of analyzed drug items identified as cocaine, by state, 2005.

Percent/State

- 30.0–58.0
- 25.0–29.9
- 17.0–24.9
- 6.0–16.9
- 0.0–5.9
- No Data
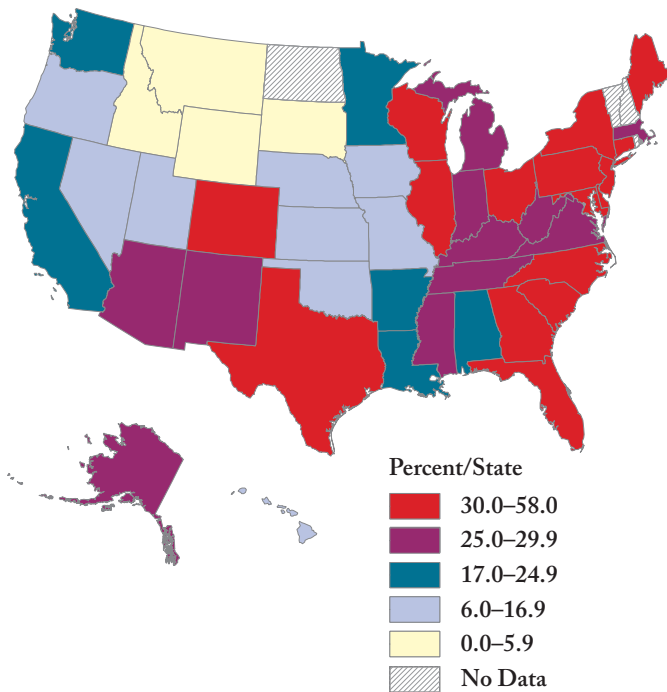
Figure 5.4 Percentage of analyzed drug items identified as heroin, by state, 2005.

Percent/State

- 10.0–16.2
- 4.0–9.9
- 2.0–3.9
- 1.0–1.9
- 0.0–0.9
- No Data
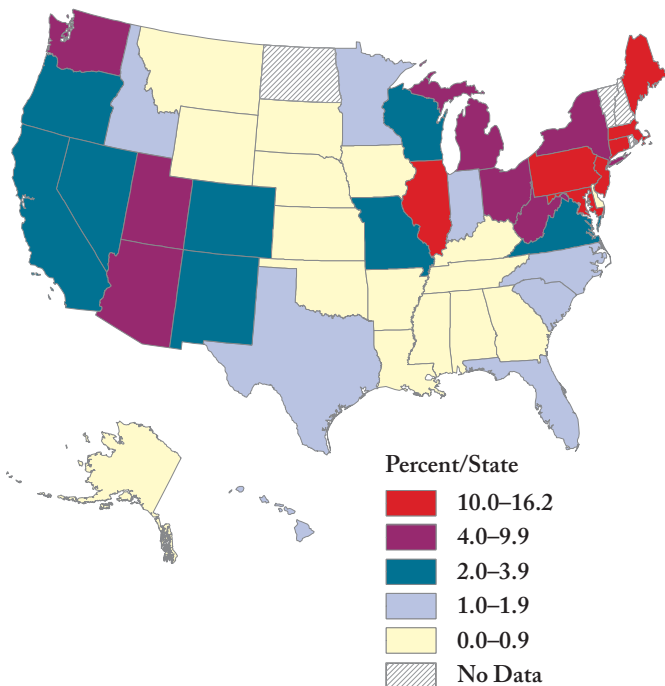
Figure 5.5 Percentage of analyzed drug items identified as cannabis in Ohio, by county, 2005.
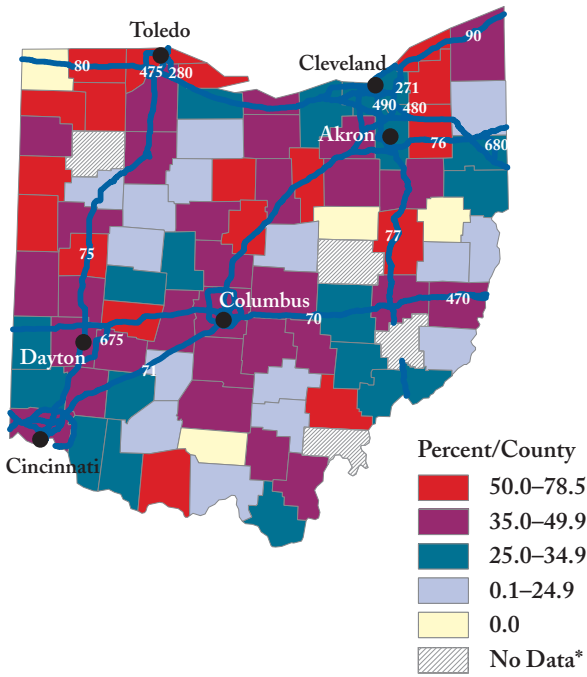
Percent/County
- 50.0–78.5
- 35.0–49.9
- 25.0–34.9
- 0.1–24.9
- 0.0
- No Data*

Based on information submitted by law enforcement agencies, no analyzed drug items came from these counties.

Figure 5.6 Percentage of analyzed drug items identified as methamphetamine in Oregon, by county, 2005.
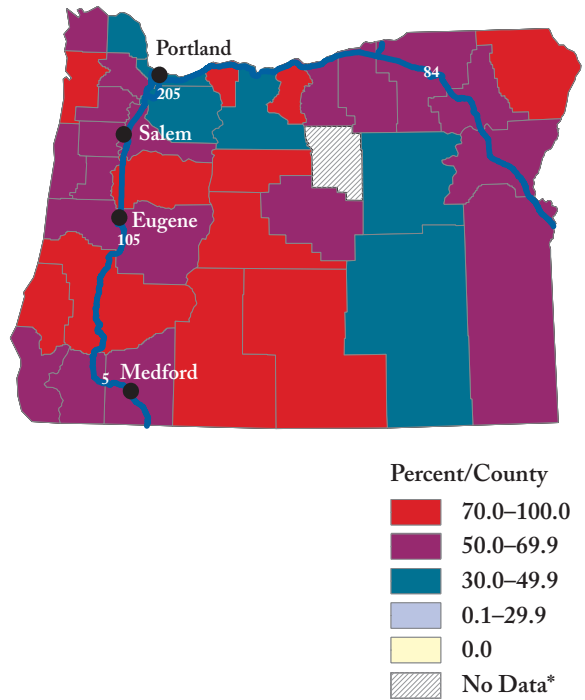
Percent/County
- 70.0–100.0
- 50.0–69.9
- 30.0–49.9
- 0.1–29.9
- 0.0
- No Data*

Based on information submitted by law enforcement agencies, no analyzed drug items came from these counties.

Figure 5.7 Percentage of analyzed drug items identified as cocaine in North Carolina, by county, 2005.

Percent/County
- 55.0–100.0
- 35.0–54.9
- 20.0–34.9
- 0.1–19.9
- 0.0
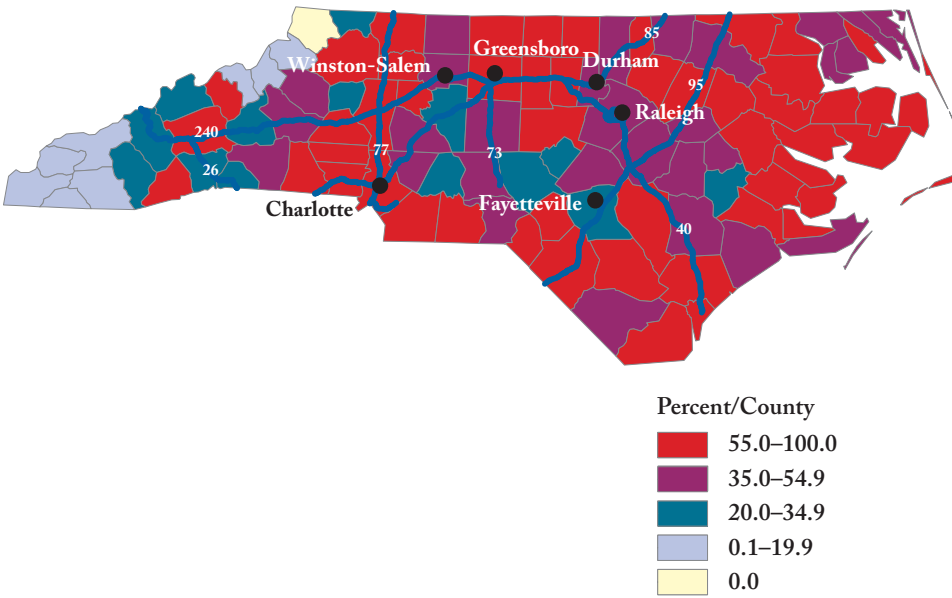
Figure 5.8 Percentage of analyzed drug items identified as heroin in New Jersey, by county, 2005.

Percent/County
- 15.0–25.0
- 10.0–14.9
- 7.0–9.9
- 0.1–6.9
- 0.0
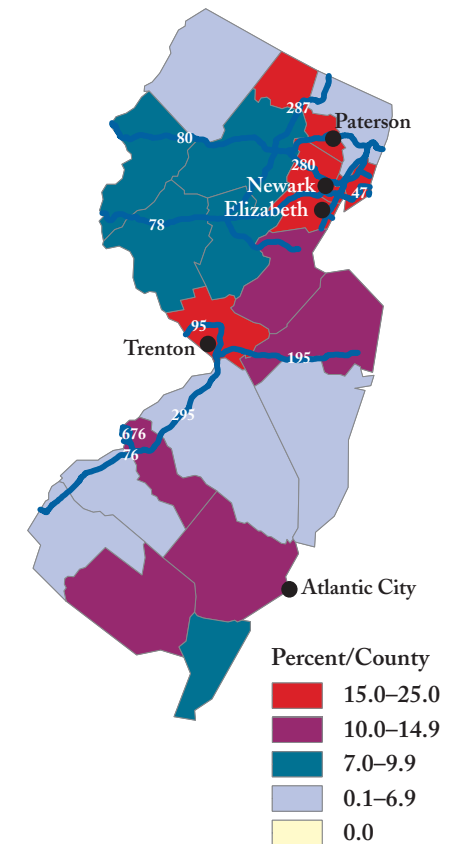
DRUG PURITY

One of the unique 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 2005, a total of 12 state or local laboratories or laboratory systems reported purity data to NFLIS.

It is important to consider the laboratory policies for conducting quantitative analysis when comparing purity data across laboratories, as these factors can impact the results presented. For example, the Illinois State Police and the Texas Department of Public Safety typically limit quantitative analysis to larger seizures (e.g., powders over 200 grams or 1 kilogram). Other laboratories, such as the Baltimore City Police Department Crime Laboratory, perform quantitative analyses on a more routine basis, including smaller cocaine and heroin seizures.

6.1 HEROIN PURITY

This section describes heroin purity analyses reported by the Baltimore City Police Department and the Massachusetts State Police Crime Laboratory. The Baltimore City Police Department laboratory performs quantitative analysis on all white powders greater than 1/4 ounce or if more than 30 dosage units are present in a case, especially for heroin seizures. The Massachusetts State Police Crime Laboratory expresses purity in terms of free base and has a policy of routinely performing quantitative analyses for heroin and cocaine submissions. The average purity of heroin, as reported by both of these laboratories as well as by DEA laboratories in STRIDE, has declined since 2001. According to STRIDE, the average purity of heroin exhibits was 45% in 2005, compared to 40% in 2004, 42% in 2003, 49% in 2002, and 48% in 2001.
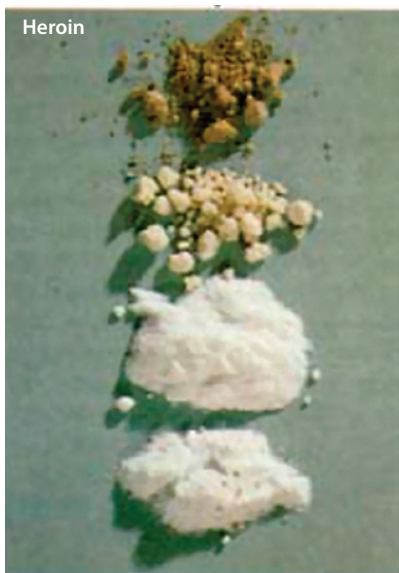
Heroin

www.Erowid.org

The Baltimore City Police Department reported heroin purity results for 236 drug items in 2005 (Figure 6.1). The average purity of heroin was 35%, down slightly from 38% in 2004 and considerably lower than the average purity of 45% in 2003 and 49% in 2002. Overall, more than 40% of heroin items reported by the Baltimore City Police Department were less than 25% pure.

Figure 6.1 Heroin purity, 2005: Baltimore City Police Department Crime Laboratory.

(n=236; $\bar{x}$=35%)
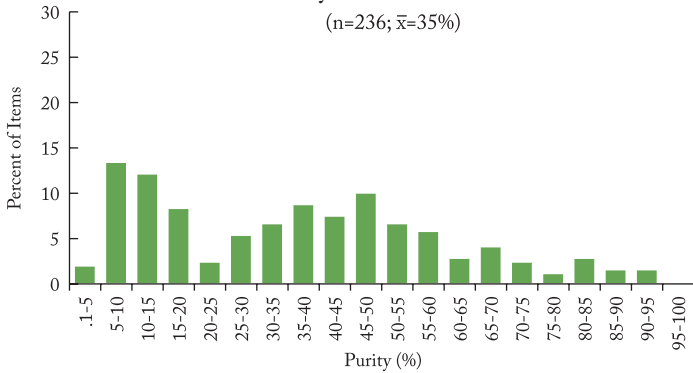
The Massachusetts State Police reported heroin purity results for 685 items in 2005 (Figure 6.2). The average purity of heroin was 31%, the same average purity as reported in 2004 but lower than the average of 40% in 2003 and 47% in 2002. Over one-third of heroin items reported by the Massachusetts lab were less than 25% pure.

Figure 6.2 Heroin purity, 2005: Massachusetts State Police Crime Laboratory.

(n=685; $\bar{x}$=31%)
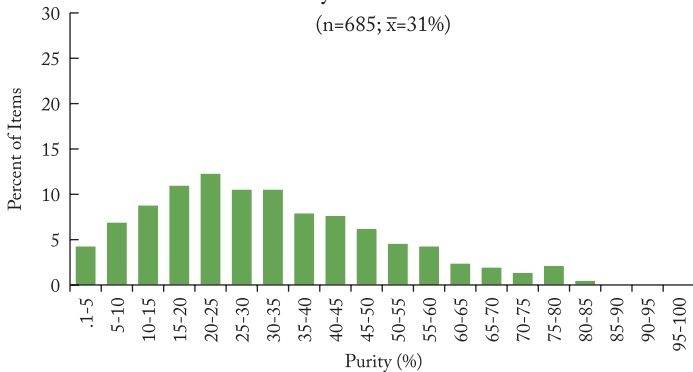
6.2 COCAINE PURITY

Cocaine purity is presented for four NFLIS laboratories: the Texas Department of Public Safety (DPS), the Arkansas State Crime Laboratory, the Baltimore City Police Department Crime Laboratory, and the Massachusetts State Police Crime Laboratory. In contrast to the decline in heroin purity, NFLIS laboratories reported cocaine purity averages in 2005 at levels either equal to or increased from 2001 to 2004 levels. Cocaine purity reported by federal laboratories in STRIDE increased during this period, from an average of 58% in 2001 to 73% in 2005.

The Texas DPS laboratory system, which typically conducts quantitative analyses for powders of 200 grams or more, reported purity data for 231 cocaine items during 2005 (Figure 6.3). The average cocaine purity for 2005 was 71%, up from 66% in 2004, 63% in 2003, 60% in 2002, and 56% in 2001.

Figure 6.3 Cocaine purity, 2005: Texas Department of Public Safety Crime Laboratory.

(n=231; $\bar{x}$=71%)

Crack Cocaine

©2004 LGC
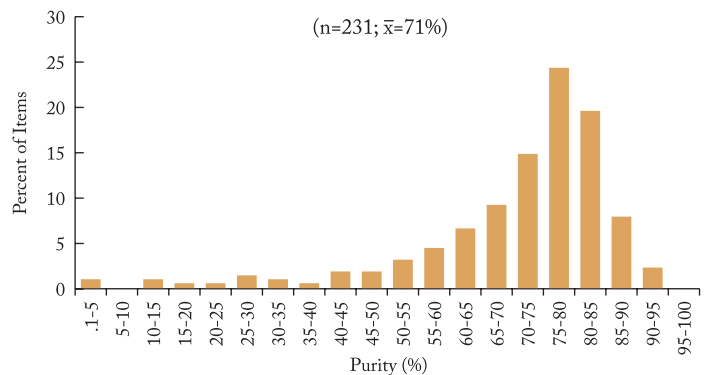
The Arkansas State Crime Laboratory reported cocaine purity for 119 items in 2005 (Figure 6.4). The Arkansas State Crime Laboratory typically conducts quantitative analysis if the drug exhibit contains an amount for which possession with intent to deliver is charged. The average cocaine purity reported in Arkansas was 69% in 2005, the same average purity reported in 2004 and 2003.

**Figure 6.4** Cocaine purity, 2005: Arkansas State Crime Laboratory.
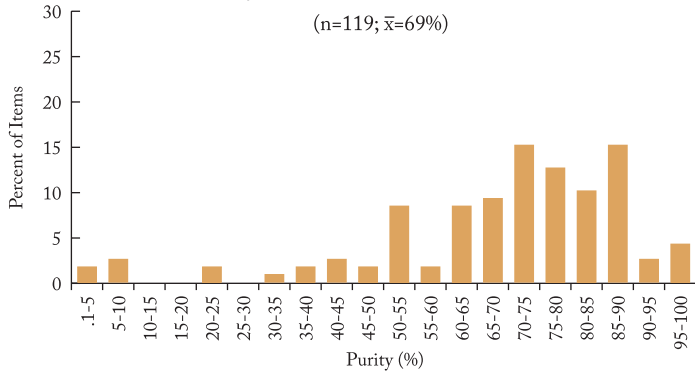
The Baltimore City Police Department Crime Laboratory reported cocaine purity for 65 items in 2005 (Figure 6.5). The average cocaine purity reported during 2005 was 71%, compared to 79% in 2004, 75% in 2003, 67% in 2002, and 61% in 2001.

Figure 6.5 Cocaine purity, 2005: Baltimore City Police Department Crime Laboratory.
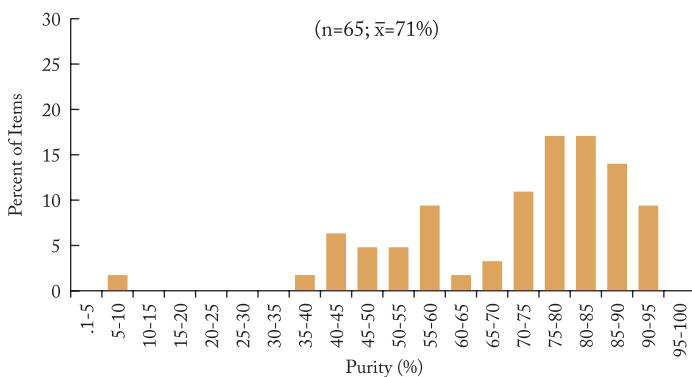
The Massachusetts State Police reported cocaine purity for 1,694 items in 2005 (Figure 6.6). The average cocaine purity reported by Massachusetts has increased steadily, with average purity of 60% in 2005, 55% in 2004, 53% in 2003, and 48% in 2002.

Figure 6.6 Cocaine purity, 2005: Massachusetts State Police Crime Laboratory.

Powder Cocaine

DEA Update
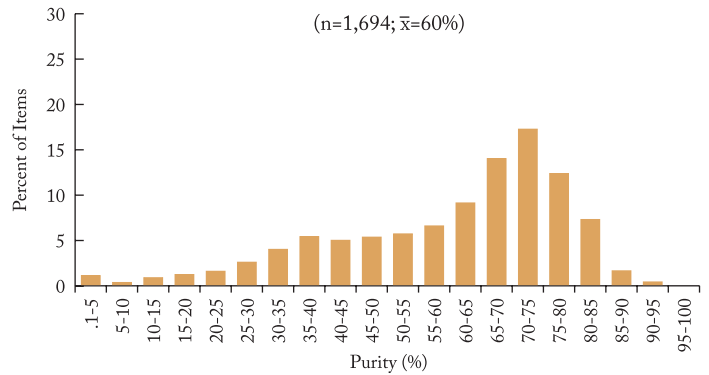
Illicit Manufacture of Fentanyl

The Drug Enforcement Administration (DEA) is concerned about the apparent increase in the illicit manufacture and distribution of fentanyl. Within the last two and a half years, at least three fentanyl clandestine laboratories, a kilogram of high-purity fentanyl hydrochloride, a variety of fentanyl-containing tablets (both Ecstasy mimics and OxyContin® mimics), and various mixtures of fentanyl powders, heroin, and cocaine have been seized throughout the United States. Several hundred overdoses and overdose deaths in the Chicago, Detroit, and Philadelphia metropolitan areas have been attributed to fentanyl since September 2005. The initial review of this fentanyl activity has indicated the presence and distribution of illicitly manufactured fentanyl.

The DEA's Drug and Chemical Evaluation Section (ODE) is considering controlling fentanyl's precursor chemicals. ODE is interested in obtaining information on all seizures of illicitly manufactured fentanyl within the past 4 years, as well as all seizures through the end of 2007, to document the extent of the problem. It is seeking information concerning the synthetic route used by clandestine laboratories to manufacture fentanyl. Furthermore, to evaluate the impact on public health, ODE is requesting data on the number of overdoses and overdose deaths attributed to illicitly manufactured fentanyl only (i.e., not to legitimately manufactured fentanyl patches or to pharmaceutical-grade fentanyl citrate, both of which are occasionally abused).

In 1965, Janssen Pharmaceutica patented the original synthesis route for fentanyl, which uses N-benzyl-4-piperidone as its starting material. The challenging Janssen synthesis route is beyond the skill level of most chemists manufacturing drugs illicitly; however, it has been used illicitly by chemists with advanced technical training. In the early 1980s, an alternative fentanyl synthesis route was published in the scientific literature. This route, which uses N-phenethyl-4-piperidone (NPP) as its starting material, has been used in a number of clandestine laboratories.

Illicit fentanyl's synthesis route can be determined by identifying marker contaminants in the seized material. The presence of benzylfentanyl (also known as N-1-benzyl-4-piperidyl-N-phenylpropanamide) suggests that the Janssen synthesis route was used to manufacture the illicit fentanyl. From a gas chromatograph/mass spectrometer (GC/MS) analysis of the drug exhibits, the benzylfentanyl contaminant can be tentatively identified by matching the four primary mass fragments (82, 91, 146, 173) in benzylfentanyl's mass spectrum (see the May 2006 *Microgram Bulletin* for a printed mass spectrum).[7] If present, the benzylfentanyl contaminant

peak has a relative retention time of about 0.963 to that of fentanyl, depending on the type of capillary column used and the GC temperature program used.

In contrast, the presence of the immediate precursor 4-anilino-N-phenethylpiperidine (ANPP) suggests that the NPP synthesis route was used. Likewise, the ANPP contaminant can be tentatively identified by matching the three primary mass fragments (146, 189, 280) in ANPP's mass spectrum (see the May 2006 *Microgram Bulletin* for a printed mass spectrum).[7] If present, the ANPP contaminant peak has a relative retention time of about 0.891 to that of fentanyl. The NPP synthesis route was independently tested by F. Taylor Noggle et al., and the results were published in *Microgram*.[8]

Unfortunately, the information on fentanyl seizures in databases such as DEA's System To Retrieve Information from Drug Evidence (STRIDE), the El Paso Intelligence Center's Clandestine Laboratory Seizure System (CLSS), and DEA's National Forensic Laboratory Information System (NFLIS) does not include sufficient detail to identify the synthesis route. Therefore, ODE is soliciting information from all federal, state, and local agencies and offices (e.g., law enforcement, forensic and crime laboratories, toxicology laboratories, coroner's offices, and medical examiners) to document the presence or absence of the contaminants benzylfentanyl and ANPP in fentanyl seizures within the past 4 years, as well as all seizures through the end of 2007. ODE is requesting the documentation of all occurrences of illicitly manufactured fentanyl (again, not from pharmaceutical sources), the synthesis route used (e.g., as determined from the presence of marker compounds), and the number of known overdoses and overdose deaths cause by illicitly manufactured fentanyl. Please contact Michael Wilson, Drug Science Specialist, at 202-307-7183 with any related information.

Contact Us

Michael Wilson
Drug and Chemical Evaluation Section
Office of Diversion Control
Drug Enforcement Administration, Washington, DC 20537
Phone: 202-307-7183
Fax: 202-353-1263
E-mail: michael.h.wilson@usdoj.gov

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[7] *Microgram Bulletin*. May 2006, [http://www.usdoj.gov/dea.gov/programs/forensicsci/microgram/mg0506/mg0506.html].

[8] Noggle, F. Taylor et al. (1993). *Microgram*. (26)12:285. Washington, DC: U.S. Drug Enforcement Administration (DEA).

PARTICIPATING AND REPORTING FORENSIC LABORATORIES

State	Lab Type	Lab Name	Reporting
AK	State	Alaska Department of Public Safety	✓
AL	**State**	**Alabama Department of Forensic Sciences (9 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	✓
	Local	Fresno County Sheriff's Forensic Laboratory	✓
	Local	Kern County District Attorney's Office (Bakersfield)	✓
	Local	**Long Beach Police Department**	✓
	Local	**Los Angeles Police Department (2 sites)**	✓
	Local	**Los Angeles County Sheriff's Department (4 sites)**	✓
	Local	Orange County Sheriff's Department	✓
	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	Local	Aurora Police Department	✓
	Local	Colorado Springs Police Department	✓
	Local	**Denver Police Department**	✓
	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 (Ft. Lauderdale)**	✓
	Local	**Miami-Dade Police Department**	✓
	Local	Indian River Crime Laboratory	✓
	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 Investigation**	✓
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	✓
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	**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 (6 sites)**	✓
	Local	Independence Police Department	✓
	Local	KCMO Regional Crime Laboratory (Kansas City)	✓
	Local	MSSU Regional Crime Laboratory (Joplin)	✓
	Local	St. Charles County Criminalistics Laboratory	✓
	Local	St. Louis County Crime Laboratory (Clayton)	✓
	Local	**St. Louis Police Department**	✓
	Local	**South East Missouri Regional Crime Laboratory (Cape Girardeau)**	✓

State	Lab Type	Lab Name	Reporting
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	✓
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**	✓
NV	**Local**	**Las Vegas Police Department**	✓
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	
	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 (8 sites)**	✓
PA	State	Pennsylvania State Police Crime Laboratory (6 sites)	
	Local	**Allegheny County Coroner's Office (Pittsburgh)**	✓
	Local	**Philadelphia Police Department**	✓
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	Harris County Medical Examiner's Office (Houston)	✓
	Local	Jefferson County Sheriff's Regional Crime Laboratory (Beaumont)	
	Local	Pasadena Police Department	✓
	Local	Fort Worth Police Department Criminalistics Laboratory	✓
UT	State	Utah State Crime Laboratory (4 sites)	✓
VA	**State**	**Virginia Division Forensic Science (4 sites)**	✓
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 September 29, 2006.

Laboratories in bold are part of our 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 non-controlled 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

- 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) Survey.

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 DEA's STRIDE. STRIDE includes data from DEA's laboratories across the country. The STRIDE data are shown separately in this report. Efforts are under way to enroll additional federal laboratories during 2006 and 2007.

- 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 can affect the types of drugs submitted 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 as well as on aggregated regional and national data.

The IDS operates as a secure 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 year, 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. Approved government agency staff and researchers are able to access the aggregated and summarized data. Depending upon the level of access, users have the ability to conduct analyses using preset queries. New usernames and passwords are required to access restricted areas of the IDS. To request a username and password, please visit the NFLIS Web site at https://www.nflis.deadiversion.usdoj.gov.

NATIONAL ESTIMATES METHODOLOGY

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 provided laboratory-specific information, including annual caseload figures, used to establish a national sampling frame of all state and local forensic labs 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 labs). Only the data for those laboratories that reported drug analysis data for 7 or more months during 2005 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 labs from January 2005 through December 2005.

A separate item-level and case-level weight was computed for each sample laboratory or laboratory system using caseload information obtained from an updated lab survey administered in 2004. These survey results allowed for the case- and item-level weights to be post-stratified 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

Not all drugs are reported by laboratories with sufficient frequency to allow reliable estimates to be computed. For some drugs, such as cannabis/THC and cocaine, thousands of items are reported annually, allowing for reliable national prevalence estimates to be computed. Many other substances have 100 or fewer annual observations for the entire sample. A prevalence estimate based upon such few observations is not likely to be reliable and thus was not included in the national estimates.

The method for evaluating the cutoff point was established using the coefficient of variation, or CV, which is the ratio between the standard error of an estimate and the estimate itself. As a rule, drug estimates with a CV greater than 0.5 were suppressed and not shown in the tables.

IMPUTATIONS AND ADJUSTMENTS

Due to technical and other reporting issues, several labs did not report data for every month during 2005. 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 labs reporting a full year of data.

While most forensic laboratories report case-level analyses in a consistent manner, a small number of labs do not produce item-level counts that are comparable to those submitted by the vast majority of labs. 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. Since the case-level counts across labs are comparable, they were used to develop item-level counts for the few labs that count items differently. For those labs, it was assumed that drug-specific ratios of cases to items should be similar to labs 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 2005 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.)* All statistical tests were performed at the 95% confidence level ($\alpha = .05$). 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%.

* *For more information on this technique, please refer to Chernick, M.R. (1999).* Bootstrap Methods: A Practitioner's Guide. New York: *Wiley.*

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Drug Enforcement Administration
Office of Diversion Control
600 Army Navy Drive
Arlington, VA 22202

Attention: Liqun Wong, DEA Program Officer
Phone: 202-307-7176
Fax: 202-353-1263
E-mail: liqun.l.wong@usdoj.gov

RTI INTERNATIONAL

RTI International*
Health, Social, and Economics Research
3040 Cornwallis Road, PO Box 12194
Research Triangle Park, NC 27709-2194

Attention: Valley Rachal, Project Director
Phone: 1-800-334-8571, ext. 7712
Fax: 919-485-7700
E-mail: jvr@rti.org

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