U.S. DEPARTMENT OF JUSTICE
DRUG ENFORCEMENT ADMINISTRATION
DIVERSION CONTROL DIVISION

NFLIS
NATIONAL FORENSIC LABORATORY INFORMATION SYSTEM

DRUG MEC TOX

TOX

2021 Toxicology Laboratory Survey Report

Highlights

The National Forensic Laboratory Information System (NFLIS) Survey of Toxicology Laboratories (NFLIS-Tox Survey) was administered from March through August 2021. The survey collected information on toxicology caseloads, policies, and practices for calendar year 2019. A total of 196 toxicology laboratories (TLs) completed the full survey, and an additional 8 TLs responded to the critical items related to caseload information and types of toxicology testing services offered. Overall, 204 out of 281 TLs provided the required data, yielding an overall response rate of 73%.

During calendar year 2019, slightly more than 28 million toxicology cases were submitted to responding TLs. On average, public TLs accepted a small fraction of the submitted cases that private TLs accepted (16,068 vs. 298,204).

Of responding TLs, 56% conducted human performance testing, 45% performed postmortem testing, and 41% performed clinical drug testing. The most commonly reported testing types offered by public TLs were human performance and postmortem testing, whereas the most commonly reported testing types offered by private TLs were clinical drug and workplace drug testing.

Immunoassay was used by 88% of responding TLs to conduct presumptive drug screening.

The average turnaround time to complete a toxicology case was 33.3 days. The average for private TLs was fewer than five days.

TLs reported "routinely" conducting qualitative toxicology testing for the following drugs or drug classes more than 50% of the time: amphetamines, antidepressants, barbiturates, benzodiazepines, buprenorphine, carisoprodol, cocaine, ethanol, fentanyl, heroin, marijuana/THC, muscle relaxants, opiates and opioids (other than heroin and fentanyl), phencyclidine (PCP), and Z-drugs (e.g., zolpidem).

More TLs responded that they send samples to a reference laboratory for phenethylamine, piperazine, synthetic cannabinoid, and synthetic cathinone testing than for testing of other drugs or drug classes.

Contents

Highlights i
Introduction 1
Ownership and Operation 1
Caseload 2
Accreditation 3
Types of Testing Performed 3
Novel Psychoactive Substance Toxicology Testing 5
Average Turnaround Time to Complete Cases 5
Qualitative and Quantitative Analysis Frequency 5
Use of Reference Laboratories 6
Information Management Systems 8
Appendix A 9
Public Domain Notice and Obtaining Copies of This Publication 10

NFLIS-Tox Recruitment

Recruitment of NFLIS-Tox laboratories began in February 2019. To date, 90 toxicology laboratories, including 71 public and 19 private laboratories, are participating in NFLIS-Tox. If your laboratory would like to participate in NFLIS-Tox, please contact the NFLIS team at DEANFLIS@rti.org. For more information about joining NFLIS-Tox, see the NFLIS-Tox recruitment flyer and NFLIS FAQ document on the NFLIS website.

DEA would like to thank the 90 laboratories currently participating in NFLIS-Tox and the more than 200 laboratories that completed the NFLIS-Tox 2021 Survey.

Introduction

The National Forensic Laboratory Information System (NFLIS) is a program of the U.S. Drug Enforcement Administration's (DEA's) Diversion Control Division. Since 1997, NFLIS-Drug, the original component of NFLIS, has systematically collected drug identification results and associated information from drug cases submitted to and analyzed by Federal, State, and local forensic laboratories. In 2018, DEA expanded the NFLIS program to include two additional continuous drug surveillance components that collect (1) drug-related mortality data from medical examiner and coroner offices (NFLIS-MEC) and (2) drug testing results from toxicology laboratories (NFLIS-Tox).

An important component of NFLIS-Tox is the NFLIS Survey of Toxicology Laboratories (NFLIS-Tox Survey). The first NFLIS-Tox Survey was conducted in 2017. In 2021, the second NFLIS-Tox Survey was conducted to collect updated information on toxicology caseloads, policies, and practices for calendar year 2019 from the Nation's public and private toxicology laboratories (TLs).[i] Although the survey was administered in 2021, data for calendar year 2019 were collected because many laboratories were affected by the coronavirus disease 2019 (COVID-19) pandemic, making data for 2020 atypical. The NFLIS-Tox 2021 Survey results are being used to inform the identification and recruitment of eligible TLs for NFLIS-Tox.

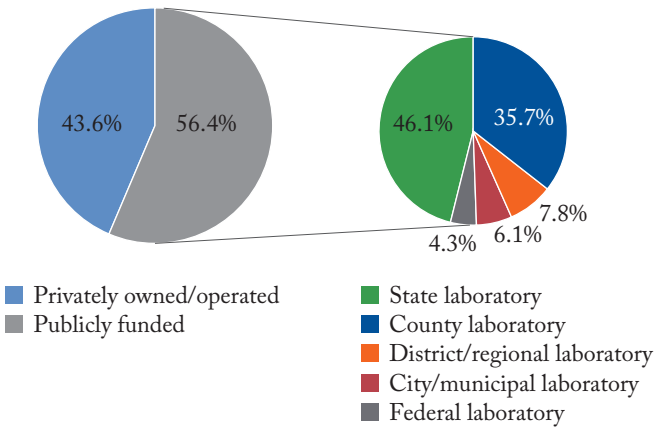
This NFLIS publication presents findings from the NFLIS-Tox 2021 Survey. A total of 196 TLs completed the full survey, and an additional 8 TLs responded to the critical items related to caseload information and types of toxicology testing services offered. Overall, 204 out of 281 TLs provided the critical data, yielding an overall response rate of 73%. First presented is administrative information, including ownership and operation, caseload, and accreditation status. Types of toxicology testing performed are presented next, followed by policies for novel psychoactive substance (NPS) toxicology testing, average turnaround time, qualitative and quantitative analysis frequency across several drugs and drug categories, use of reference laboratories, and information management systems. Appendix A contains details on the data collection methods used for the NFLIS-Tox 2021 Survey.

[i] The NFLIS-Tox 2017 Survey Report presents corresponding findings for calendar year 2016. See the following reference: Diversion Control Division. (2018). *National Forensic Laboratory Information System: 2017 Toxicology laboratory survey report*. U.S. Department of Justice, U.S. Drug Enforcement Administration. https://www.nflis.deadiversion.usdoj.gov/nflisdata/docs/NFLIS-2017ToxLabSurveyReport.pdf

Ownership and Operation

Of the TLs that responded to the survey, 56% were publicly funded, whereas 44% were privately owned and operated (*Figure 1*). Of the 115 publicly funded TLs responding to the survey, 46% were State TLs and 36% were county TLs.

Figure 1 Toxicology Laboratories in the United States, by Ownership



Source: NFLIS-Tox 2021 Survey of Toxicology Laboratories.

Of the 89 privately owned and operated TLs that responded to the survey, 85 identified the location of the majority of their clients (*Table 1*). Their responses demonstrated the diverse nature of these TLs, with the highest percentage indicating that they served clients nationwide (41%).

Table 1 *Clients Served by Responding Private Toxicology Laboratories*

Clients	Number	Percentage
Clients nationwide	35	41.2
Regional clients (clients are mostly located in multiple nearby States)	25	29.4
Statewide clients (clients are mostly located throughout my State)	14	16.5
Localized clients (clients are mostly located in my community or surrounding communities)	11	12.9
Total[1]	**85**	**100.0**

[1] Excludes four respondents with unknown client location information.

Source: NFLIS-Tox 2021 Survey of Toxicology Laboratories.

Additionally, 84 private TLs responded to the question about the type of clients they mostly serve. Of these, 22 (26%) indicated they served hospital-affiliated clients. The remaining 62 (74%) did not indicate serving hospital- or university-affiliated clients (data not shown).

TLs were asked to choose the most accurate organizational context, which was designed to capture whether the TL was a standalone facility or part of a laboratory network. If the TL was part of a laboratory network, respondents were then asked what type of laboratory it represented (central or satellite laboratory) and its data sharing practices.

Of the 201 TLs that provided the requested information, 76% reported being a standalone facility with no organizational relationship to other laboratories, and 19% were central laboratories in a network that reported electronic network sharing. In addition, 5% reported being a satellite laboratory that reported electronic network sharing, and less than 1% reported being a satellite laboratory in a network with no electronic data sharing (data not shown).

Caseload

Caseload was determined by the number of toxicology cases submitted to responding TLs in 2019. TLs were asked to exclude cases where only alcohol was tested in samples. A potential limitation of this approach to determining caseload is that some TLs may not have the ability to separate out cases in which only alcohol was tested. Of the 204 TLs that provided caseload information, 78% reported having caseloads of between 0 and 49,999 in 2019 (*Table 2*). Less than 10% of TLs reported having caseloads of 250,000 or more, and all but two of those were private TLs.

Slightly more than 28 million toxicology cases were submitted to responding TLs in 2019 (*Table 3*). Given the wide caseload range, averages and medians provide additional context Specifically, the average caseload across all responding TLs was 139,157, and the national median caseload across all responding TLs was 5,327. On average, public TLs received a small fraction of the submitted cases compared with private TLs (16,068 vs. 298,204).

Table 2 *Caseload of Responding Toxicology Laboratories, by Toxicology Laboratory Ownership*

	Overall		Public TLs		Private TLs	
Number of Cases[1]	Number	Percentage	Number	Percentage	Number	Percentage
250,000 or more	18	8.8	2	1.7	16	18.0
50,000–249,999	27	13.2	3	2.6	24	27.0
20,000–49,999	20	9.8	2	1.7	18	20.2
10,000–19,999	10	4.9	2	1.7	8	9.0
5,500–9,999	24	11.8	19	16.5	5	5.6
3,500–5,499	27	13.2	19	16.5	8	9.0
1,500–3,499	34	16.7	30	26.1	4	4.5
1,000–1,499	7	3.4	7	6.1	0	0.0
500–999	17	8.3	16	13.9	1	1.1
0–499	20	9.8	15	13.0	5	5.6
Total[2]	**204**	**100.0**	**115**	**100.0**	**89**	**100.0**

TL = toxicology laboratory.

[1] The number of cases is based on responses to survey questions asking for (1) the total number of cases submitted to the TLs during calendar year 2019 and (2) the total number of cases submitted to the TLs by type of toxicological testing during calendar year 2019. Data were collected during full survey administration and via nonresponse, partial completes, and prompting follow-up efforts.

[2] Percentages may not add to totals because of rounding.

Source: NFLIS-Tox 2021 Survey of Toxicology Laboratories.

Table 3 *Total, Average, and Median Cases Submitted to Responding Toxicology Laboratories, by Toxicology Laboratory Ownership*

TL Type	Total Toxicology Cases Submitted to Responding TLs	Average Number of Cases Submitted	Median Number of Cases Submitted
Public	1,847,843	16,068	2,491
Private	26,540,113	298,204	38,246
Total[1]	**28,387,956**	**139,157**	**5,327**

TL = toxicology laboratory.

[1] The number of cases is based on responses to survey questions asking for (1) the total number of cases submitted to the TLs during calendar year 2019 and (2) the total number of cases submitted to the TLs by type of toxicological testing during calendar year 2019. Data were collected during full survey administration and via nonresponse, partial completes, and prompting follow-up efforts.

Source: NFLIS-Tox 2021 Survey of Toxicology Laboratories.

Accreditation

The survey requested that respondents indicate which types of accreditations their TL currently held. Of the 197 TLs that answered the question, 42% were accredited by the American National Standards Institute (ANSI) National Accreditation Board (ANAB), 38% were accredited by Clinical Laboratory Improvement Amendments (CLIA), 31% were accredited by the College of American Pathologists (CAP), 29% were State accredited, and 17% were accredited by the American Board of Forensic Toxicology (ABFT) (data not shown).

By TL ownership, there were fairly large differences in accreditation types held, which likely reflects the TLs' functions and purpose. Compared with private TLs, public TLs had higher percentages of ANAB accreditation (68% vs. 7%) and ABFT accreditation (23% vs. 9%). On the other hand, private TLs had higher percentages of CLIA accreditation (79% vs. 7%), CAP accreditation (62% vs. 6%), and State accreditation (47% vs. 15%) (data not shown).

Types of Testing Performed

Human performance testing (56%), postmortem testing (45%), and clinical drug testing (41%) were the most common types of toxicology testing performed by responding TLs (***Table 4***). TLs were asked if they provided only toxicology services or multiple services including toxicology. Of responding TLs, 75 provided only toxicology services and 122 provided multiple services (data not shown).

Table 4 *Types of Toxicology Testing Performed by Responding Toxicology Laboratories*

Toxicology Testing Performed	Number	Percentage
Human performance (e.g., driving under the influence of drugs, drug-facilitated sexual assault, major crime, vehicular manslaughter)	114	55.9
Postmortem	91	44.6
Clinical drug testing (e.g., substance abuse treatment, methadone maintenance, pain management, primary care, mental health)	84	41.2
Workplace drug testing	55	27.0
Criminal justice supervision (e.g., probation, parole)	47	23.0
Performance enhancing (e.g., sports testing)	6	2.9
Total[1]	**204**	**100.0**

[1] Toxicology laboratories were asked to report all types of testing performed. Response options are not mutually exclusive; numbers and percentages may not add to totals.

Source: NFLIS-Tox 2021 Survey of Toxicology Laboratories.

Given the wide range of toxicology testing performed by responding TLs in function and purpose, the types of testing results make sense when examined by TL ownership and operation. ***Figure 2*** shows the differences by TL ownership and most commonly performed type of testing. Public TLs most commonly reported postmortem and human performance testing, whereas the most commonly reported types of testing performed by private TLs were clinical drug testing and workplace drug testing.

The survey requested that respondents indicate the type of presumptive drug screening performed by their TL (***Figure 3***). Of the 194 TLs that responded about presumptive drug screening, 99 public and 72 private TLs (88% overall average) performed presumptive drug screening using immunoassay. A total of 24 TLs indicated using high-resolution mass spectrometry (HRMS) for presumptive drug screening. This is notable for the NFLIS-Tox program because many immunoassay instruments are based on drug class or are nonreactive to fentanyl-related compounds, synthetic cannabinoids, or synthetic cathinones. However, HRMS can screen for many individual drugs.

As expected, both types of TLs perform more definitive confirmation testing, predominately gas chromatography–mass spectrometry (GC-MS) and liquid chromatography–tandem mass spectrometry (LC-MS/MS). Of the 195 TLs that responded about their confirmation methods, nearly three times as many public TLs as private TLs reported using GC-MS for confirmation (98 vs. 33) (***Figure 4***). Overall, 17 TLs responded that they used HRMS, which allows for retrospective data analysis. This means that if a TL suspects a new substance a month after analyzing a sample, it can perform retrospective data analysis to identify the substance in a previously analyzed sample Interestingly, overall, 48 TLs responded that at least some of their confirmation testing is sent to a reference laboratory.

Figure 2 Types of Toxicology Testing Performed by Responding Toxicology Laboratories, by Toxicology Laboratory Ownership[1]

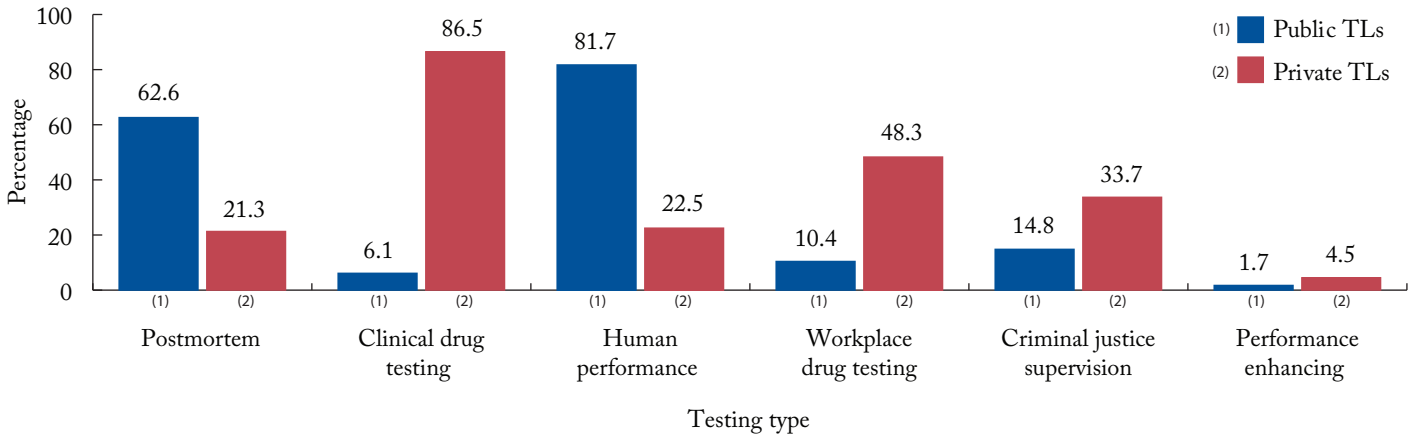


Figure 3 Toxicology Presumptive Drug Screening, by Toxicology Laboratory Ownership[2]

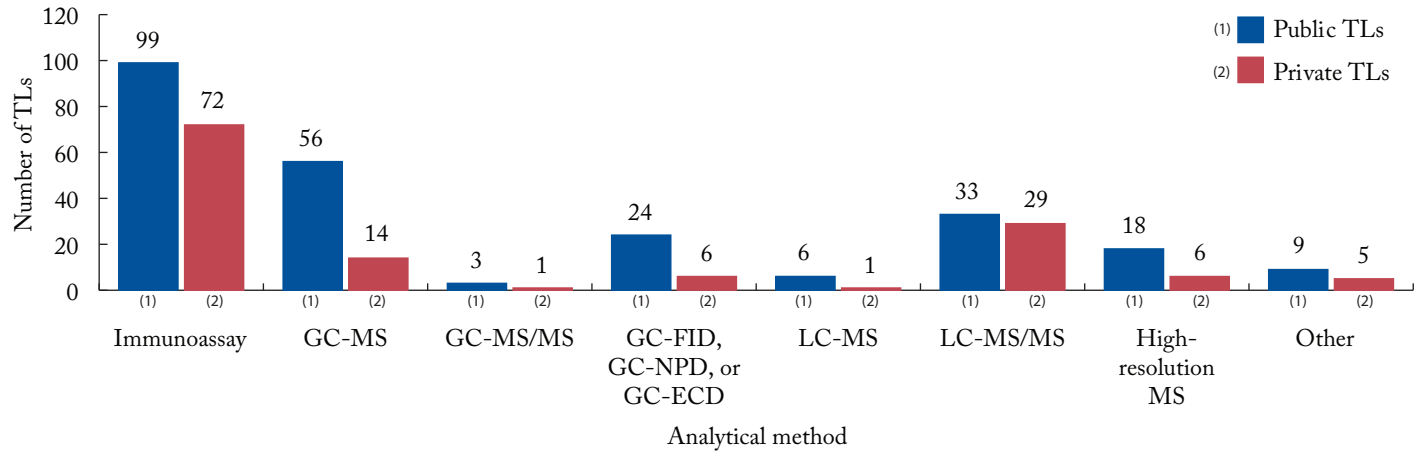
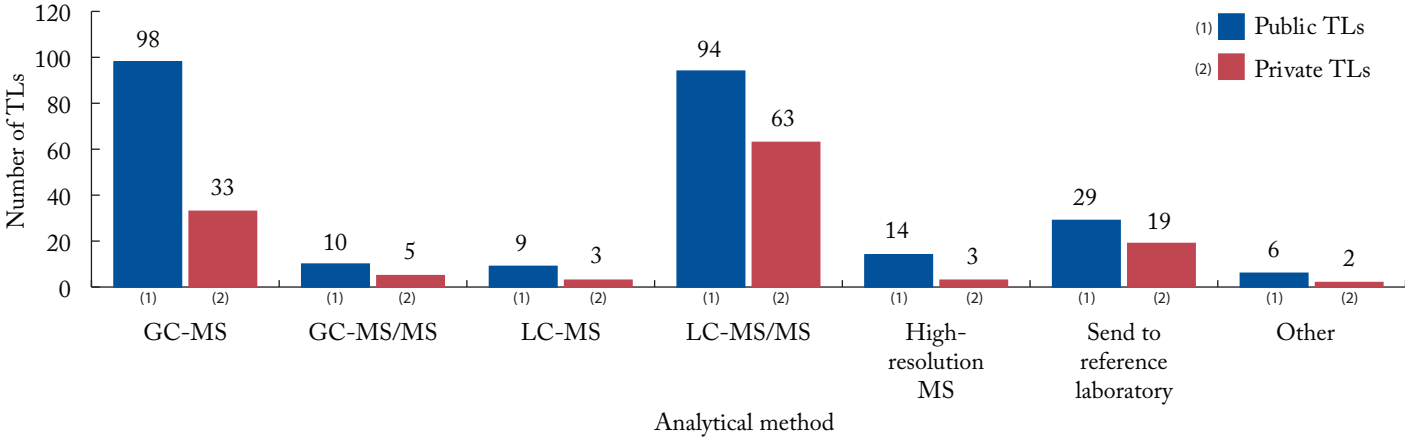


Figure 4 Toxicology Drug Confirmation, by Toxicology Laboratory Ownership[3]



GC-ECD = gas chromatography with electron capture detector; GC-FID = gas chromatography with flame ionization detector; GC-MS = gas chromatography–mass spectrometry; GC-MS/MS = gas chromatography with tandem mass spectrometry; GC-NPD = gas chromatography with nitrogen phosphorus detector; LC-MS = liquid chromatography–mass spectrometry; LC-MS/MS = liquid chromatography with tandem mass spectrometry; MS = mass spectrometry; TL = toxicology laboratory.

[1] TLs were asked to report all types of testing performed. Response options are not mutually exclusive; percentages may not add to totals.

[2] Excludes 10 respondents with unknown type of presumptive drug screening.

[3] Excludes nine respondents with unknown type of confirmation testing.

Source: NFLIS-Tox 2021 Survey of Toxicology Laboratories.

Novel Psychoactive Substance Toxicology Testing

TLs were asked about their normal course of action for conducting toxicology testing for NPS. Of the 196 TLs that responded to the question, 54% conduct some NPS testing in house, 30% send cases to a reference laboratory for NPS testing, and 24% screen for some NPS in house and send cases to a reference laboratory for confirmation (*Table 5*). About one-quarter (24%) reported that they do not proceed with any type of testing for NPS.

Table 5 *Testing Practices for Novel Psychoactive Substances by Responding Toxicology Laboratories, by Toxicology Laboratory Ownership*

Testing Practices for NPS	Overall		Public TLs		Private TLs	
	Number	Percentage	Number	Percentage	Number	Percentage
Conduct some NPS analysis in house	106	54.1	69	61.6	37	44.0
Submit cases to a reference laboratory	58	29.6	36	32.1	22	26.2
Do not conduct analysis	47	24.0	21	18.8	26	31.0
Screen for some NPS in house and send cases to a reference laboratory for confirmation	46	23.5	35	31.3	11	13.1
Assist the submitting agency in finding a reference laboratory	26	13.3	21	18.8	5	6.0
None of the above	4	2.0	0	0.0	4	4.8
Total[1]	**196**	**100.0**	**112**	**100.0**	**84**	**100.0**

NPS = novel psychoactive substance; TL = toxicology laboratory.

[1] Excludes eight respondents with unknown information on toxicology testing practices. TLs were asked to report all testing practices for NPS. Response options are not mutually exclusive; numbers and percentages may not add to totals.

Source: NFLIS-Tox 2021 Survey of Toxicology Laboratories.

Average Turnaround Time to Complete Cases

Information on average turnaround time, in days, to complete a toxicology case, excluding turnaround time for alcohol-only cases, was also collected. Across the 196 TLs providing this information, the overall average turnaround time was 33.3 days (*Table 6*). The average for private TLs was fewer than 5 days compared with 55.2 days for public TLs.

Table 6 *Turnaround Time in Days by Toxicology Laboratories*

TLs	Average	Median	Maximum
Public	55.2	42.0	250.0
Private	4.1	2.0	48.0
Overall[1]	33.3	19.0	250.0

TL = toxicology laboratory.

[1] Excludes eight respondents with unknown turnaround times.

Source: NFLIS-Tox 2021 Survey of Toxicology Laboratories.

Qualitative and Quantitative Analysis Frequency

TLs were asked to report their qualitative and quantitative testing frequency ("routinely," "sometimes," "rarely") for specific drugs and drug classes. The numbers of responding TLs ranged from 155 to 190 across the drugs and drug classes for qualitative analysis frequency and ranged from 149 to 186 across the drugs and drug classes for quantitative analysis frequency (data not shown). Results are discussed based on the overall frequency percentage (≤ 25%, 26% to 49%, and ≥ 50%) at which responding TLs routinely analyze for specific drugs or drug classes. Providing results in this manner shows the most frequently tested drugs across the TLs.

Table 7 summarizes the overall qualitative analysis frequency percentages. *Table 8* summarizes the overall quantitative analysis frequency percentages. Phenethylamines, piperazines, synthetic cannabinoids, and synthetic cathinones were the drug classes least frequently (≤ 25%) tested on a routine basis by responding TLs. The drug classes that were most frequently (≥ 50%) qualitatively analyzed on a routine basis included amphetamines, antidepressants, barbiturates, benzodiazepines, buprenorphine, carisoprodol, cocaine, ethanol, fentanyl, heroin, marijuana/THC, muscle relaxants, opiates and opioids (other than heroin and fentanyl), phencyclidine (PCP), and Z-drugs; these same drugs, as well as gabapentin and ketamine, were also the drug classes that were most frequently (≥ 50%) quantified on a routine basis.

Table 7 *Percentage of Responding Toxicology Laboratories Reporting "Routinely" Conducting Qualitative Analysis, by Drug and Drug Class*

≤ 25% of TLs	26% to 49% of TLs	≥ 50% of TLs	
Phenethylamines	Anticonvulsants	Amphetamines	Fentanyl
Piperazines	Antipsychotics	Antidepressants	Heroin
Synthetic cannabinoids	Fentanyl-related compounds	Barbiturates	Marijuana/THC
Synthetic cathinones	Gabapentin	Benzodiazepines	Muscle relaxants
	Inhalants/volatiles	Buprenorphine	Opiates and opioids (other than heroin and fentanyl)
	Ketamine	Carisoprodol	
	Over-the-counter medications	Cocaine	Phencyclidine (PCP)
		Ethanol	Z-drugs

TL = toxicology laboratory.

Source: NFLIS-Tox 2021 Survey of Toxicology Laboratories.

Table 8 *Percentage of Responding Toxicology Laboratories Reporting "Routinely" Conducting Quantitative Analysis, by Drug and Drug Class*

≤ 25% of TLs	26% to 49% of TLs	≥ 50% of TLs	
Phenethylamines	Anticonvulsants	Amphetamines	Gabapentin
Piperazines	Antipsychotics	Antidepressants	Heroin
Synthetic cannabinoids	Fentanyl-related compounds	Barbiturates	Ketamine
Synthetic cathinones	Inhalants/volatiles	Benzodiazepines	Marijuana/THC
	Over-the-counter medications	Buprenorphine	Muscle relaxants
		Carisoprodol	Opiates and opioids (other than heroin and fentanyl)
		Cocaine	
		Ethanol	Phencyclidine (PCP)
		Fentanyl	Z-drugs

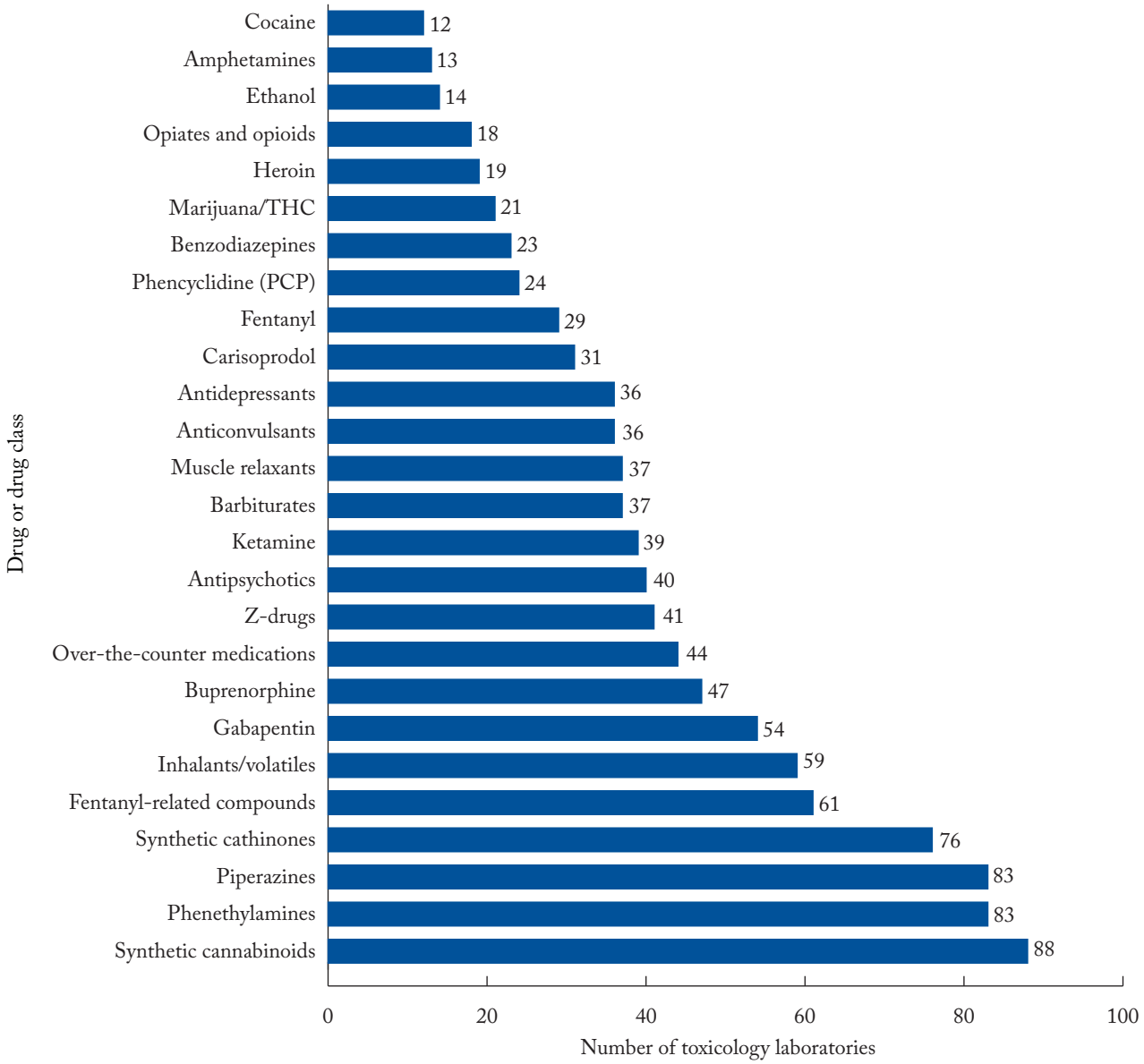
TL = toxicology laboratory.

Source: NFLIS-Tox 2021 Survey of Toxicology Laboratories.

Use of Reference Laboratories

The NFLIS-Tox 2021 Survey asked TLs to report the drug or drug class testing that they outsource to a reference laboratory (*Figure 5*). More TLs responded that they send samples to a reference laboratory for synthetic cannabinoid, phenethylamine, and piperazine testing than for testing for other drugs or drug classes. In addition, TLs were asked if they used or served as a reference laboratory (*Table 9*). Of the 197 TLs that provided this information, 94 TLs (48%) used a reference laboratory without also serving as a reference laboratory, and 57 (29%) served as a reference laboratory. Overall, 46 TLs (23%) responded that they do not use a reference laboratory or serve as a reference laboratory for toxicology testing.

Figure 5 Toxicology Laboratories Reporting Use of a Reference Laboratory, by Drug or Drug Class



Source: NFLIS-Tox 2021 Survey of Toxicology Laboratories.

Table 9 *Uses a Reference Laboratory or Serves as a Reference Laboratory, by Toxicology Laboratory Ownership*

Reference Laboratory	Total		Public TLs		Private TLs	
	Number	Percentage	Number	Percentage	Number	Percentage
Uses a reference laboratory but does not serve as a reference laboratory	94	47.7	68	60.7	26	30.6
Serves as a reference laboratory but does not use a reference laboratory	20	10.2	1	0.9	19	22.4
Uses a reference laboratory and serves as a reference laboratory	37	18.8	13	11.6	24	28.2
Does not use a reference laboratory or serve as a reference laboratory	46	23.4	30	26.8	16	18.8
Total[1,2]	**197**	**100.0**	**112**	**100.0**	**85**	**100.0**

TL = toxicology laboratory.

[1] Excludes seven respondents with unknown information on their TLs' use of or service as a reference laboratory.

[2] Percentages may not add to totals because of rounding.

Source: NFLIS-Tox 2021 Survey of Toxicology Laboratories.

Information Management Systems

The use of an information management system can enhance a laboratory's ability to manage its caseload and to create a database with useful reporting capabilities. Overall, nearly 80% of the 196 TLs that provided information on the type of information management system they used reported having a computerized, networked system; 17% responded that they use a partially computerized system with some manual record keeping; and 3% responded that they had a manual record-keeping system or a computerized, non-networked system (data not shown).

TLs were also asked to report on the specific type of information management system they use. Of the 194 TLs that provided this information, 37% used software from the companies commonly used by the forensic laboratories in the NFLIS-Drug program, including JusticeTrax, BEAST, and Forensic Advantage (*Table 10*). These companies were almost exclusively identified by public TLs. Approximately 13% of TLs used an information management system developed in house. JusticeTrax was the most commonly reported information management system used by public TLs, whereas CGM LABDAQ was the most commonly used by private TLs.

Table 10 *Types of Information Management Systems Used by Responding Toxicology Laboratories, by Toxicology Laboratory Ownership*

Information Management Systems Used by TLs with Computerized Systems	Overall		Public TLs		Private TLs	
	Number	Percentage	Number	Percentage	Number	Percentage
JusticeTrax	34	17.5	33	30.0	1	1.2
BEAST	27	13.9	26	23.6	1	1.2
In-house information management system	26	13.4	16	14.5	10	11.9
CGM LABDAQ	12	6.2	0	0.0	12	14.3
Forensic Advantage	10	5.2	10	9.1	0	0.0
Horizon	8	4.1	1	0.9	7	8.3
VertiQ	8	4.1	8	7.3	0	0.0
Orchard Harvest	6	3.1	0	0.0	6	7.1
Labgen	5	2.6	0	0.0	5	6.0
Apollo[1]	5	2.6	0	0.0	5	6.0
Cerner[1]	5	2.6	2	1.8	3	3.6
EPIC Beaker[1]	5	2.6	2	1.8	3	3.6
Other system	39	20.1	12	10.9	27	32.1
Not applicable	2	1.0	0	0.0	2	2.4
Don't know	2	1.0	0	0.0	2	2.4
Total[2]	**194**	**100.0**	**110**	**100.0**	**84**	**100.0**

TL = toxicology laboratory.

[1] These are nonsurvey categories based on "other, specify" responses.

[2] Excludes eight respondents with unknown type of information management system. Percentages may not add to totals because of rounding.

Source: NFLIS-Tox 2021 Survey of Toxicology Laboratories.

Appendix A

The 2021 National Forensic Laboratory Information System (NFLIS) Survey of Toxicology Laboratories (NFLIS-Tox 2021 Survey) gathered information from the public and private toxicology laboratories (TLs) operating in the United States. The survey frame was developed using the NFLIS-Tox recruitment frame and the NFLIS-Tox 2017 Survey final frame. These two frames were merged to create a single survey frame with the most recent known TL count, status, and contact information. This process resulted in a survey frame with 321 TLs. During verification calling, 18 TLs were identified as not eligible for the survey (i.e., those that conducted alcohol testing only or had permanently closed). During survey data collection, another 19 TLs were identified as not eligible for the survey, and 1 TL filled out a survey for all four of its sites, resulting in the removal of three entities. The final NFLIS-Tox 2021 Survey frame, at the end of survey data collection, included 281 TLs.

Instrumentation

The NFLIS-Tox 2021 Survey was designed using findings from the NFLIS-Tox 2017 Survey. The draft survey was revised following comments from DEA and refined following the guidance of experts in the toxicology fields, who pilot-tested the instrument to identify problems with wording, content, or format. After revisions were made based on the expert review, five cognitive interviews were conducted with staff from public and private TLs to identify potential issues with survey instructions, question wording, and response options; to identify any improvements; and to estimate the respondent burden. A final revision of the instrument was completed to incorporate cognitive interview feedback. It was determined that the NFLIS-Tox 2021 Survey would ask for information on calendar year 2019 caseload data to avoid any irregularity that may come from the coronavirus disease 2019 (COVID-19) pandemic. The final NFLIS-Tox 2021 Survey included 31 questions.

Data Collection Strategy

TLs were asked to complete a web survey, although accommodations were made to allow respondents to submit surveys by email, mail, or telephone if needed. For respondents to access the web version of the survey, login credentials and passwords were created and included in the lead and follow-up letters and emails sent to the TL primary contacts.

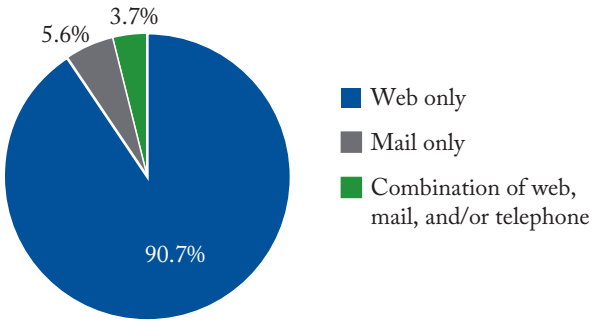
Before survey data collection began, verification calls were conducted in August and September 2020 to ensure that appropriate contacts were documented and were eligible for the survey. The active survey data collection period lasted from March through August 2021. Lead letters from DEA and RTI International[ii] were mailed and emailed to the primary contacts identified during the verification call effort. All letters were printed on the appropriate letterhead (i.e., DEA or RTI). The RTI letter contained information about the NFLIS-Tox 2021 Survey, instructions for survey completion (including unique username and password), and whom to contact with questions. The DEA letter included information about the NFLIS program and encouraged respondents to complete the survey. The two lead letters were mailed together. Each lead letter packet was mailed via United Parcel Service (UPS) Next Day Air on March 2, 2021. The corresponding email notice was sent the same day and included links to any additional materials.

Response Rates and Survey Mode

A total of 216 of the 281 eligible TLs returned the survey (77%). However, 12 of the surveys were incomplete and did not provide information for the critical items. Overall, 204 TLs provided completed surveys or provided information for the critical items. Of those 204 TLs, 96% completed the full survey and 4% completed critical items only.

Figure A.1 presents the response rates of the 216 TLs by survey mode (i.e., web only; mail only; or some combination of survey mode, including web, mail, and/or telephone). Of TLs that completed the full survey, about 91% provided web-only responses and almost 6% provided mail-only responses. In addition, about 4% of responding TLs provided some combination of web, mail, and telephone response, which reflects respondents participating in the survey by providing responses to only critical items.

Figure A.1 Response Rates, by Survey Mode



Source: NFLIS-Tox 2021 Survey of Toxicology Laboratories.

[ii] RTI International is a registered trademark and a trade name of Research Triangle Institute. RTI is the DEA contractor for NFLIS.

Suggested citation:

Diversion Control Division. (2022). *National Forensic Laboratory Information System: 2021 Toxicology Laboratory Survey report.* U.S. Department of Justice, U.S. Drug Enforcement Administration.

Obtaining Copies of This Publication: Electronic copies of this publication can be downloaded from the NFLIS website at https://www.nflis.deadiversion.usdoj.gov.

2021 Toxicology Laboratory Survey Report

U.S. Drug Enforcement Administration
Diversion Control Division
8701 Morrissette Drive
Springfield, VA 22152

August 2022

DEA PRB 7-28-22-21