DRUG ENFORCEMENT ADMINISTRATION
DIVERSION CONTROL DIVISION

NFLIS
NATIONAL FORENSIC LABORATORY INFORMATION SYSTEM

2017 Toxicology Laboratory Survey Report

Highlights

The National Forensic Laboratory Information System (NFLIS) Toxicology Laboratory (TL) Survey was administered from June through October 2017. The survey collected information on toxicology caseloads, policies, and practices for calendar year 2016. Overall, a total of 231 out of 392 TLs completed the full survey for an overall response rate of 58.9%. Further, 68.1% provided responses to the critical items related to caseload information and types of toxicology testing services offered.

During calendar year 2016, close to 39 million toxicology requests were referred to responding TLs. On average, public laboratories had a fraction of the toxicology caseload compared with private laboratories (11,953 vs. 266,965).

Of the 227 TLs providing testing information, 53% indicated that toxicology was one of many services offered. The public laboratories commonly reported offering toxicology testing in impaired driving cases and postmortem testing. Larger proportions of private laboratories reported performing only toxicology services and clinical toxicology testing.

Sixty percent of public laboratories and 49% of private laboratories reported a "test-all" policy where every case submitted is tested for the same drugs.

Mass spectrometry–based screening tests were used in 89% of overall responding laboratories.

The average turnaround time to complete a toxicology case was 36.5 days. The average for large laboratories (more than 250,000 cases) was fewer than five days.

TLs reported "always" conducting toxicology testing for the following drugs or drug classes more than 75% of the time: alcohol, amphetamines, barbiturates, benzodiazepines, carisoprodol, cocaine, heroin, marijuana, opiates and opioids, phencyclidine (PCP), and Z-drugs (e.g., zolpidem). Compared with public and smaller laboratories, larger proportions of private and large laboratories reported "always" conducting quantitative testing on fentanyl-related substances, gabapentin, and synthetic cannabinoids.

Nearly 8 in 10 of responding TLs reported having a computerized, networked information management system, 17% had a partially computerized system with some manual record-keeping, and less than 5% had a manual record-keeping system or a computerized, non-networked system.

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Introduction

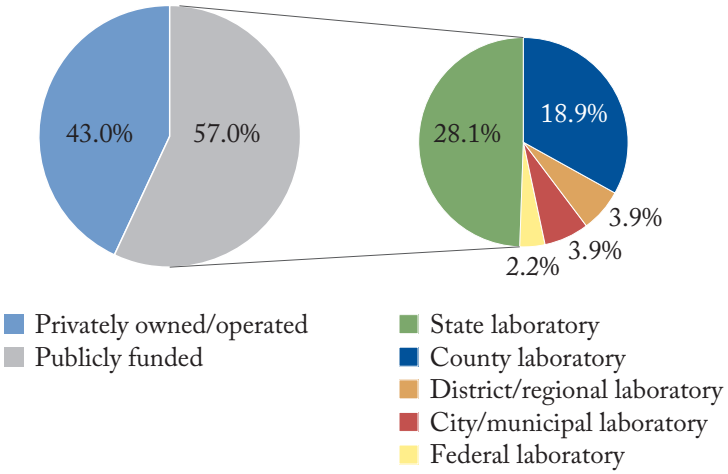
The National Forensic Laboratory Information System (NFLIS) is a program of the Drug Enforcement Administration's (DEA's) Diversion Control Division. The DEA's NFLIS-Drug data collection has involved systematically collecting drug identification results and associated information from drug cases submitted to and analyzed by participating Federal, State, and local forensic laboratories. These laboratories analyze controlled and noncontrolled substances secured in law enforcement operations across the country. NFLIS-Drug data are used to support drug scheduling decisions and to inform drug policy and drug enforcement initiatives nationally and in local communities around the country.

The DEA is expanding the NFLIS program to include two additional continuous drug surveillance components that collect drug testing results from toxicology laboratories (NFLIS-Tox) and death data from medical examiner and coroner offices (NFLIS-MEC) to supplement and complement the current NFLIS-Drug data. This NFLIS publication presents findings from the 2017 Toxicology Laboratory Survey, which was conducted to provide key information from calendar year 2016 about the Nation's public and private toxicology laboratories (TLs). Similar to the Survey of Crime Laboratory Drug Chemistry Sections that the DEA has conducted for the NFLIS-Drug program, the Toxicology Laboratory Survey data will be used to create profiles of the TLs eligible to participate in NFLIS. Overall, a total of 231 out of 392 TLs completed the full survey for an overall response rate of 58.9%. Caseload was considered a critical item; thus, 36 additional nonresponding TLs were given the option to participate in the survey by providing only caseload data, and late in the data collection effort, they provided types of toxicology testing services, yielding a critical item response rate of 68.1%. Administrative information is first presented, including operation and ownership, use of off-site and reference TLs, and accreditation status. Then caseload (referred and accepted cases) is presented, followed by procedures performed for accepted cases, testing policies for novel psychoactive substance (NPS) toxicology testing, average turnaround time, toxicology testing and quantitative analysis frequency across several drugs and drug categories, and information management systems. Appendix A contains details on the data collection methods used for the 2017 Toxicology Laboratory Survey.

Operation and Ownership

Almost 6 in 10 (57%) TLs that responded to the survey were publicly funded, whereas 43% were privately owned and operated (***Figure 1***). Of the 130 publicly funded TLs responding to the survey, 28% were State laboratories and 19% were county laboratories.

Figure 1 Ownership of Responding Toxicology Laboratories[1]



[1] Excludes respondents with unknown type of laboratory information.

Source: 2017 NFLIS Toxicology Laboratory Survey.

The 98 privately owned and operated laboratories that responded to the question asking them to describe their clients demonstrate the diverse nature of these laboratories (***Table 1***), which included university and hospital laboratories, regional, and even national client bases.

Table 1 *Clients Served by Responding Private Laboratories*

Clients Served by Private Laboratories	Number	Percentage
Clients nationwide	61	62.2
Regional clients (clients are mostly located in multiple nearby States)	35	35.7
Statewide clients (clients are mostly located throughout my State)	31	31.6
Localized clients (clients are mostly located in my community or surrounding communities)	25	25.5
Hospital-affiliated laboratory	19	19.4
University-affiliated laboratory	6	6.1
Other	5	5.1
Total respondents[1]	**98**	—

[1] Percentages may not add to total because the question asked respondents to check all that applied.

Source: 2017 NFLIS Toxicology Laboratory Survey.

Toxicology Laboratory Arrangement and Outsourcing

Respondents were asked to choose the most accurate organizational context, which was designed to capture whether the laboratory was a standalone facility or was 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 laboratory or satellite) and its data sharing practices.

Of the 226 TLs that provided the requested information, 65% reported being a standalone facility with no organizational relationship to other laboratories. Of the remaining 78 TLs, 19% were central laboratories in a network that reported electronic network sharing, and 2% were central laboratories in a network with no electronic data sharing. In addition, 7% reported being a satellite laboratory in a network that retains all data, 4% reported being a satellite laboratory that sends all data to the central laboratory, and 1% reported being a satellite laboratory that sends only the analysis results to a central laboratory.

Accreditation

The survey requested that respondents indicate which types of accreditation their laboratory currently held. Of the 226 eligible respondents that answered the question, 43% were accredited by the American National Standards Institute-American Society of Quality National Accreditation Board, 36% were accredited by the Clinical Laboratory Improvement Amendments (CLIA), 26% were accredited by the College of American Pathologists (CAP), and 15% were accredited by the American Board of Forensic Toxicology (ABFT).

By laboratory ownership, there were fairly large differences by accreditation types endorsed, which likely reflects the laboratory functions and purpose. Compared with private laboratories, public laboratories had higher percentages of ANAB accreditation (71% vs. 6%) and ABFT accreditation (21% vs. 6%) and constituted all the laboratories with National Association of Medical Examiners accreditation (10%). On the other hand, private laboratories had higher percentages of CLIA accreditation (78% vs. 4%) and CAP accreditation (54% vs. 5%) compared with public laboratories.

Caseload and Testing Policies

This section summarizes the responding TLs' caseload and toxicology testing practices. Types of toxicology services provided, analytical instrumentation, turnaround time, NPS testing, and frequency of testing and quantitating drugs are presented.

Caseload was determined by the number of toxicology requests responding laboratories received in 2016. Of the 256 laboratories that provided caseload information, close to 80% reported caseloads between 0 and 49,999 in 2016 (*Table 2*). Less than 10% of TLs reported a caseload of 250,000 or higher, and all but one of those laboratories was privately owned.

Close to 39 million toxicology requests were referred to the responding TLs in 2016. Given the wide caseload range, averages and medians provide additional context. Specifically, the average caseload across all responding TLs was 120,327, and the national median caseload across all responding TLs was 5,564 (*Table 3*). On average, public laboratories had a fraction of the toxicology caseload compared with private laboratories (11,953 vs. 266,965).

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

	Overall[1,2]		Public Laboratories		Private Laboratories	
Number of Cases	Number	Percentage	Number	Percentage	Number	Percentage
250,000 or more	23	9.0	1	0.8	19	19.6
50,000–249,999	30	11.7	2	1.6	24	24.7
20,000–49,999	28	10.9	5	3.9	18	18.6
10,000–19,999	20	7.8	4	3.1	11	11.3
5,500–9,999	28	10.9	18	14.2	6	6.2
3,500–5,499	25	9.8	16	12.6	5	5.2
1,500–3,499	35	13.7	33	26.0	2	2.1
1,000–1,499	22	8.6	17	13.4	4	4.1
500–999	22	8.6	18	14.2	2	2.1
0–499	23	9.0	13	10.2	6	6.2
Total[3]	**256**	**100.0**	**127**	**100.0**	**97**	**100.0**

[1] The number of cases is based on responses to survey questions 9 and 10, as well as data via nonresponse, partial completes, and prompting follow-up.

[2] Respondents with unknown laboratory ownership (public or private) are included.

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

Source: 2017 NFLIS Toxicology Laboratory Survey.

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

Laboratory Type	Total Toxicology Cases Referred to Responding Laboratories[1,2]	Average Number of Cases Referred	Median Number of Cases Referred
Public laboratories	1,518,089	11,954	2,219
Private laboratories	25,895,643	266,965	38,000
Total	**30,803,674**	**120,327**	**5,563**

[1] The number of cases is based on responses to survey questions 9 and 10, as well as data via nonresponse, partial completes, and prompting follow-up.

[2] Respondents with unknown laboratory ownership (public or private) are included.

Source: 2017 NFLIS Toxicology Laboratory Survey.

Types of Testing Performed

Of the 227 TLs providing testing information, more than half indicated that toxicology was one of many services offered (*Table 4*), whereas close to one in five laboratories indicated that toxicology services were the only services provided.

Table 4 *Types of Toxicology Services Provided by Responding Toxicology Laboratories*

Toxicology Services Provided[1]	Number	Percentage
Many services; toxicology is one type of service	121	53.3
Toxicology testing in impaired driving cases	87	38.3
Clinical toxicology testing	79	34.8
Postmortem testing	78	34.4
Only toxicology services	43	18.9
Human performance[2]	16	7.0
Criminal justice supervision[2]	10	4.4
Workplace drug testing[2]	8	3.5
Substance abuse treatment[2]	5	2.2
Other	54	23.8

[1] Laboratories were asked to report all applicable services; percentages will not add to 100%.

[2] These are nonsurvey categories based on other-specify responses.

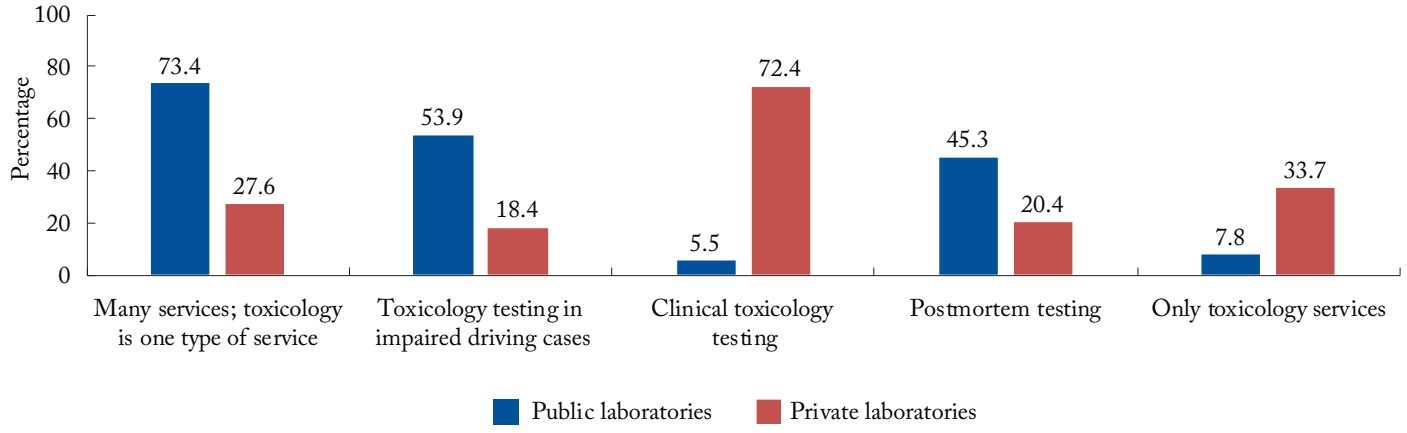
Source: 2017 NFLIS Toxicology Laboratory Survey.

Given the wide range of services and variation of TLs in function and purpose, the types of testing results make sense when examined by laboratory ownership and operation. *Figure 2* shows the differences by laboratory type and the most commonly provided services. As shown, of the 226 laboratories that provided laboratory type and service information, the public laboratories commonly reported offering many services, toxicology testing in impaired driving cases, and postmortem testing. Meanwhile, larger numbers of private laboratories reported performing only toxicology services and clinical toxicology testing.

When asked if their laboratory has a "test-all" policy where every case submitted is tested for the same drugs, 60% of public laboratories and 49% of private laboratories had such a policy. The survey requested that respondents indicate the type of drug screening (*Figure 3*) and drug confirmation (*Figure 4*) testing performed by their laboratory. A total of 218 laboratories responded with more than 90% of both laboratory types performing initial drug testing by immunoassay. Mass spectrometry–based screening tests are used in 89% of overall responding public and private laboratories. These results indicate that many public and private laboratories use immunoassay and mass spectrometry–based screening techniques. This is notable to the NFLIS-Tox program because many immunoassay instruments are drug class based or not reactive to fentanyl-related substances, synthetic cannabinoids, or synthetic cathinones.

Given that about half of responding public (50%) and private (47%) laboratories reported that they report unconfirmed results, it is notable that TLs use mass spectrometry–based techniques that can be more drug specific. As expected, both types of TLs perform more definitive confirmation testing, predominately gas chromatography/mass spectrometry and liquid chromatography/mass spectrometry. Of particular interest were the 10 laboratories that screen and confirm using time-of-flight mass spectrometry, which allows for retrospective analysis. This means that if a laboratory suspects a new fentanyl-related substance a month after analyzing a sample, the laboratory can go back and perform retrospective data analysis to identify it.

Figure 2 Selected Services Offered by Responding Toxicology Laboratories, by Laboratory Ownership[1]



[1] Laboratories were asked to report all applicable services; percentages will not add to 100%.

Source: 2017 NFLIS Toxicology Laboratory Survey.

Figure 3 Toxicology Drug Screening, by Laboratory Ownership

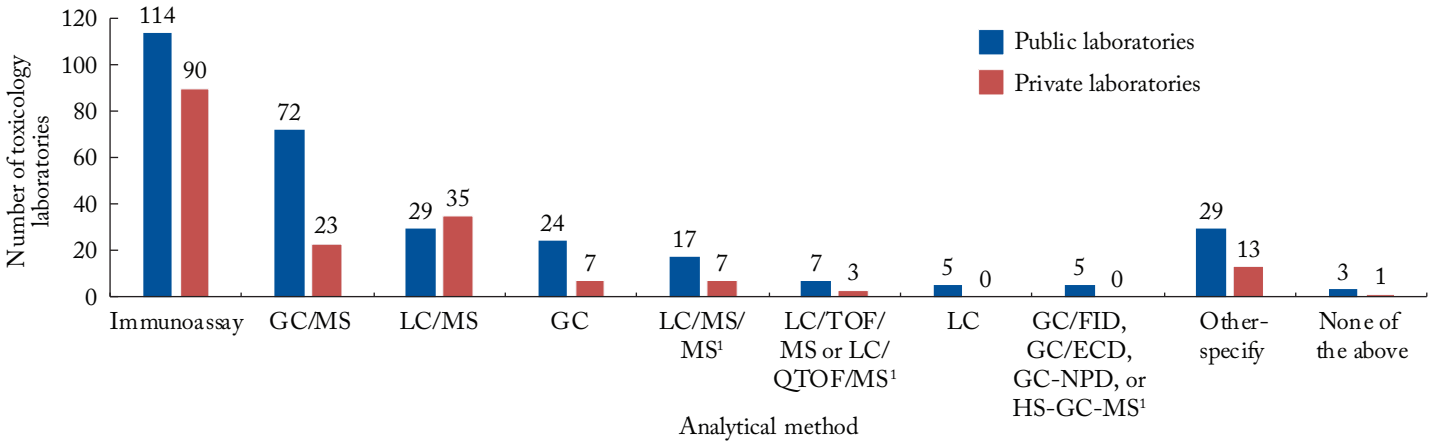
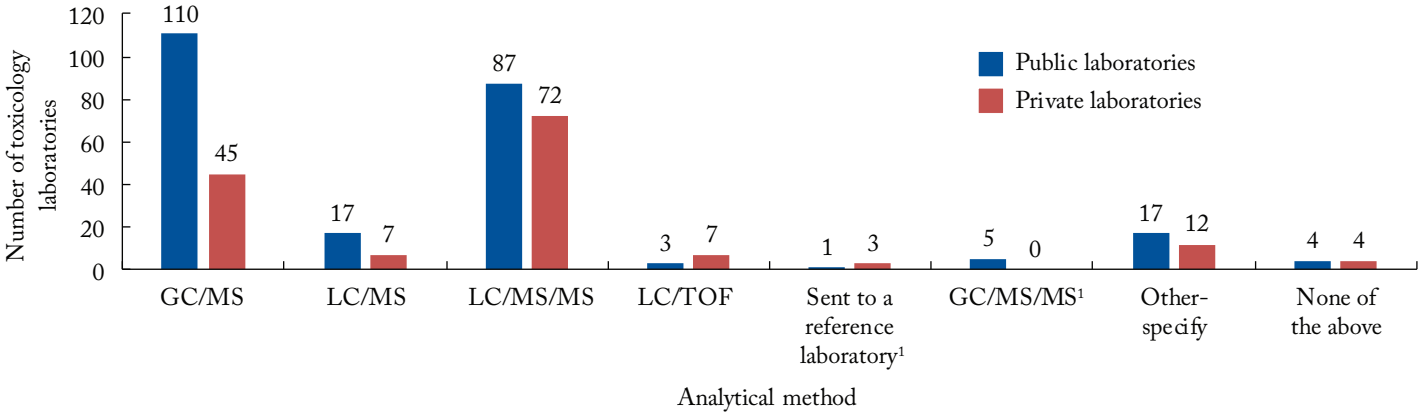


Figure 4 Toxicology Drug Confirmation, by Laboratory Ownership



GC = gas chromatography; 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; HS-GC-MS = headspace gas chromatography/mass spectrometry; LC/MS = liquid chromatography/mass spectrometry; LC/MS/MS = liquid chromatography with tandem mass spectrometry; LC/QTOF/MS = liquid chromatography quadrupole time-of-flight mass spectrometry; LC/TOF = liquid chromatography time-of-flight; LC/TOF/MS = liquid chromatography time-of-flight mass spectrometry.

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

Source: 2017 NFLIS Toxicology Laboratory Survey.

Novel Psychoactive Substance Toxicology Testing

Respondents were asked about their normal course of action for requesting toxicology analysis for NPS. Of the 212 laboratories that responded to the question, 46% send specimens to a reference laboratory for NPS testing, and 26% conduct NPS testing in-house (*Table 5*). Only 5% screen in-house followed by confirmation sent to a reference laboratory.

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

Testing Practice for NPS (e.g., Synthetic Cannabinoids)	Overall		Public Laboratories		Private Laboratories	
	Number	Percentage	Number	Percentage	Number	Percentage
Cases are submitted to a reference laboratory	98	46.2	62	52.1	36	39.1
Some NPS testing in-house[1]	55	25.9	24	20.2	31	33.7
No analysis is requested	30	14.2	18	15.1	11	12.0
Screen for some NPS drugs in-house and use a reference laboratory for confirmation[1]	11	5.2	6	5.0	5	5.4
Suggest that the submitting agency send a case sample out and assist with finding a reference laboratory[1]	5	2.4	5	4.2	0	0.0
Other	13	6.1	4	3.4	9	9.8
Total[2]	**212**	**100.0**	**119**	**100.0**	**92**	**100.0**

NPS = novel psychoactive substance.

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

[2] Respondents with unknown information on toxicology testing practices are excluded.

Source: 2017 NFLIS Toxicology Laboratory Survey.

Average Turnaround Time to Complete Cases

TLs were asked to indicate their average turnaround time, in days, for completion of a toxicology case, excluding turnaround time for alcohol-only cases. Across the 210 TLs responding to this question, the overall average turnaround time was 36.5 days (*Table 6*). The average for private and large laboratories was fewer than five days. This type of turnaround time can be expected in larger laboratories that are more equipped with instrumentation, staffing, and hours of operation greater than a typical eight-hour day to handle larger caseloads. TLs supporting pain management clients in particular must produce results for their requestors between 24 and 72 hours.

Table 6 *Turnaround Time in Days by Responding Toxicology Laboratories, by Laboratory Ownership*

Toxicology Laboratories	Average	Median	Maximum
Overall	36.5	15	400
Public laboratories	61.6	44	400
Private laboratories	4.8	2	60

Source: 2017 NFLIS Toxicology Laboratory Survey.

Toxicology Testing and Quantitative Analysis Frequency, by Drug and Drug Class

Respondents were asked to report their testing frequency (always, sometimes, never) for specific drugs and drug classes. Respondents were also asked to report their frequency for quantitating analytes using the same measures. The numbers of responding laboratories ranged from 195 to 222 across the drug or drug class testing frequency and ranged from 176 to 200 across the drug or drug class quantitation frequency. Results are discussed based on the overall testing frequency percentage (≤ 25%, ≤ 50%, and ≥ 50%) that responding laboratories always test for specific drugs or drug classes. In each testing frequency section, the frequency of quantitative analysis is also discussed. Providing results in this manner shows the most frequently tested drugs across the TLs. Notably, this is also the only section in this publication that shows differences by laboratory size as defined by caseload because differences were shown by laboratory size.

Table 7 summarizes the overall testing frequency percentage. Fentanyl-related substances, inhalants/volatiles, over-the-counter drugs, phenethylamines, piperazines, synthetic cannabinoids, and synthetic cathinones were the least frequent (≤ 25%) drug classes that are always tested by responding TLs.

A higher percentage of public laboratories responded that they "always" or "sometimes" test for these drug classes, except for synthetic cannabinoids (*Figure 5*). For synthetic cannabinoids, private laboratories responded with a higher percentage of "always" or "sometimes" quantitating these drugs (*Figure 6*).

A higher percentage of private laboratories (54%) responded that they never test for fentanyl-related substances (*Figure 7*), whereas between 46% and 56% of all laboratories responded that they never quantify fentanyl-related substances (*Figure 8*).

Less than 50% of responding laboratories stated that they always test for anticonvulsants, antidepressants, antipsychotics, buprenorphine, fentanyl, gabapentin, ketamine, and muscle relaxants. The toxicology testing frequency and quantitative analysis frequency for gabapentin are shown in *Figures 9* and *10*, respectively. These figures show that public laboratories have a higher percentage of never performing a test or quantitative analysis for gabapentin.

More than 50% of TLs responded that they always test for alcohol, amphetamines, barbiturates, benzodiazepines, carisoprodol, cocaine, heroin, marijuana, opiates and opioids, phencyclidine (PCP), and Z-drugs. The toxicology testing frequency and quantitative analysis frequency for opiates and opioids are shown in *Figures 11* and *12*, respectively, which show high rates for testing and conducting quantitative analyses.

Table 7 *Percentage of Responding Toxicology Laboratories Reporting "Always" Conducting Toxicology Testing, by Drug and Drug Class*

≤ 25%	≤ 50%	≥ 50%
Fentanyl-related substances	Anticonvulsants	Alcohol
Inhalants/volatiles	Antidepressants	Amphetamines
Over-the-counter drugs	Antipsychotics	Barbiturates
Phenethylamines	Buprenorphine	Benzodiazepines
Piperazines	Fentanyl	Carisoprodol
Synthetic cannabinoids	Gabapentin	Cocaine
Synthetic cathinones	Ketamine	Heroin
	Muscle relaxants	Marijuana
		Opiates and opioids
		Phencyclidine (PCP)
		Z-drugs

Source: 2017 NFLIS Toxicology Laboratory Survey.

Figure 5 Toxicology Testing Frequency for Synthetic Cannabinoids[1]

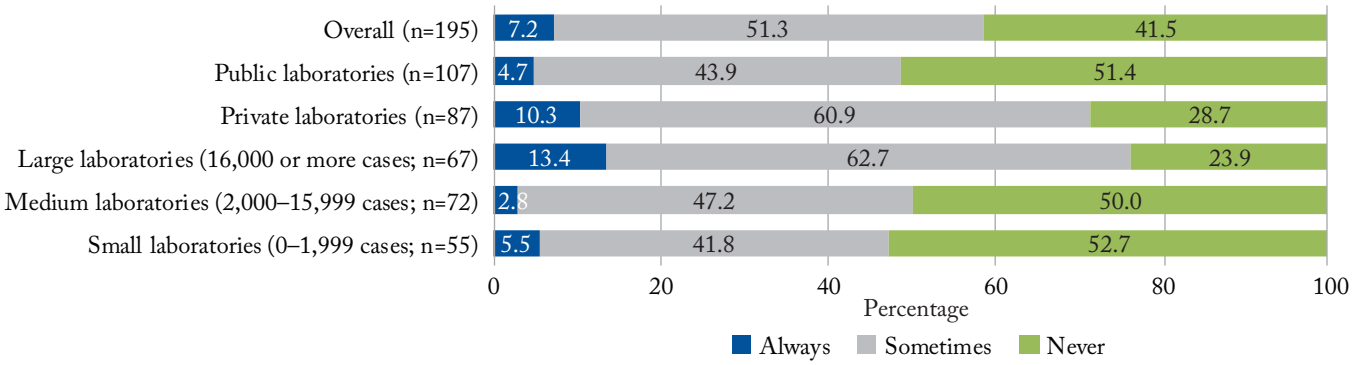


Figure 6 Quantitative Analysis Frequency for Synthetic Cannabinoids

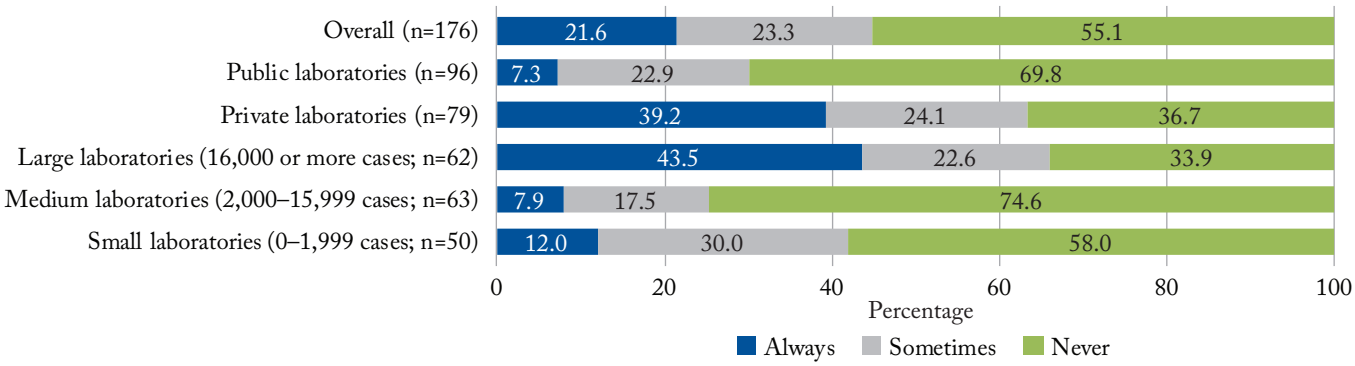


Figure 7 Toxicology Testing Frequency for Fentanyl-Related Substances[1]

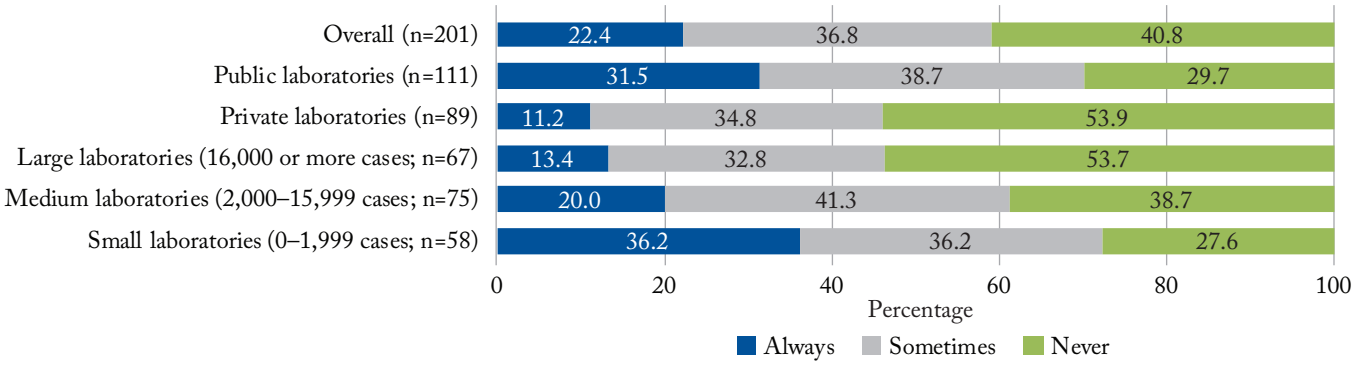
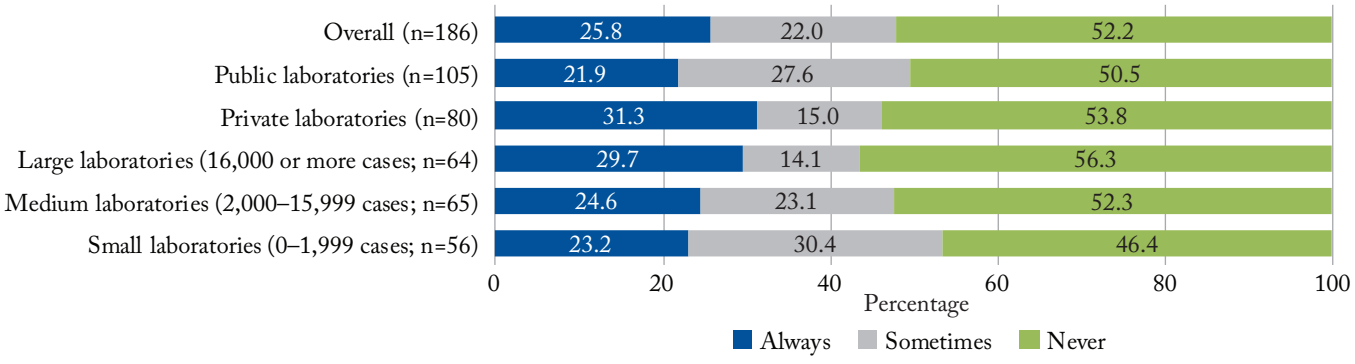


Figure 8 Quantitative Testing Frequency for Fentanyl-Related Substances[1]



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

Source: 2017 NFLIS Toxicology Laboratory Survey.

Figure 9 Toxicology Testing Frequency for Gabapentin[1]

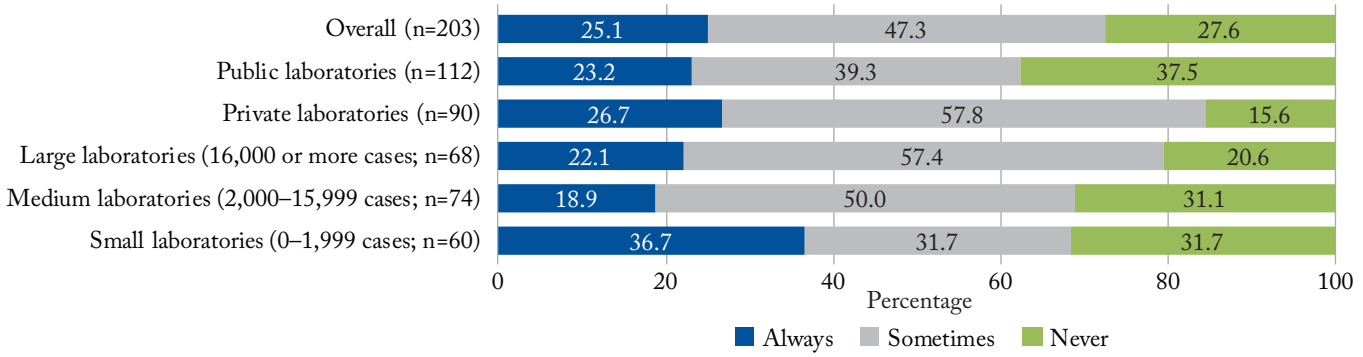


Figure 10 Quantitative Analysis Frequency for Gabapentin[1]

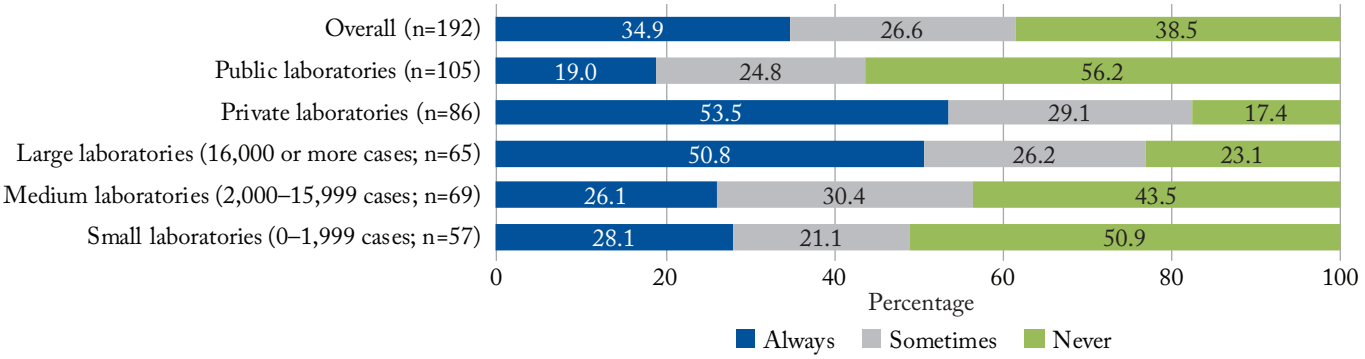


Figure 11 Toxicology Testing Frequency for Opiates and Opioids[1]

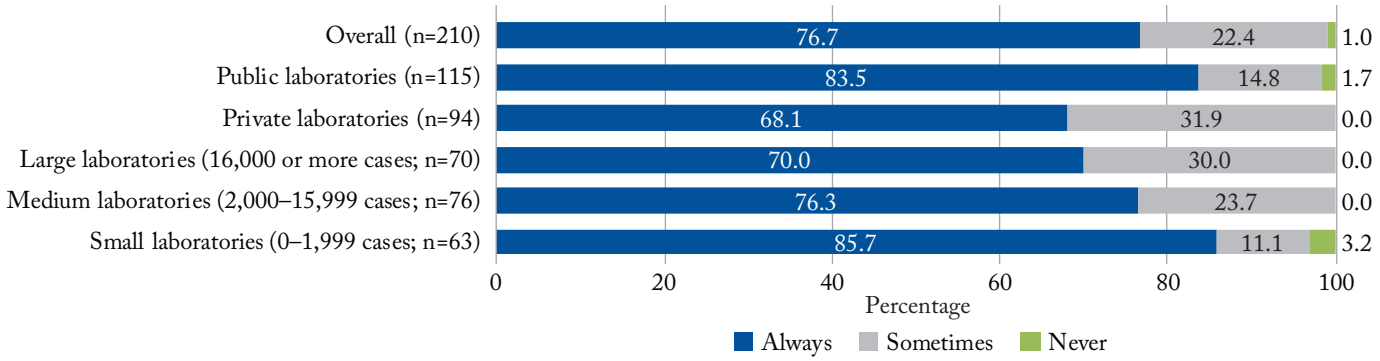
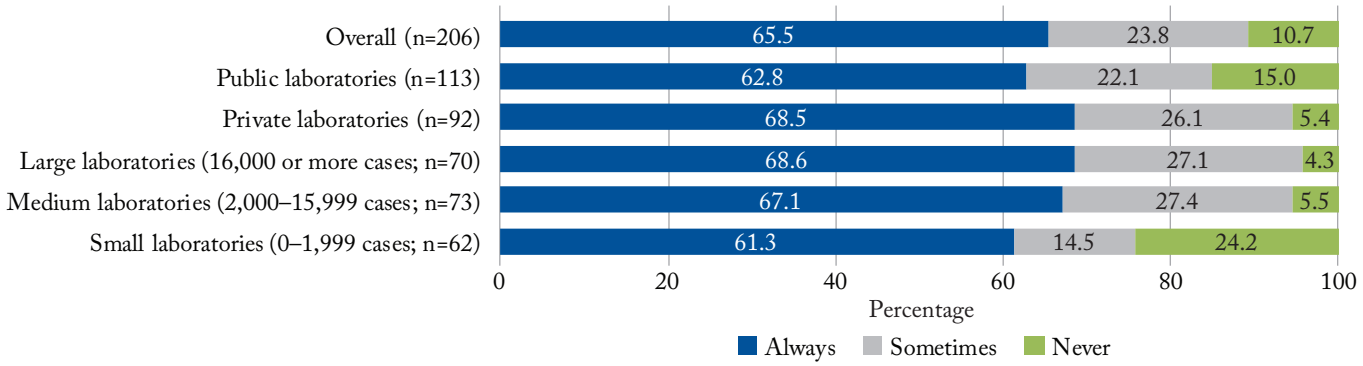


Figure 12 Quantitative Analysis Frequency for Opiates and Opioids[1]



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

Source: 2017 NFLIS Toxicology Laboratory Survey.

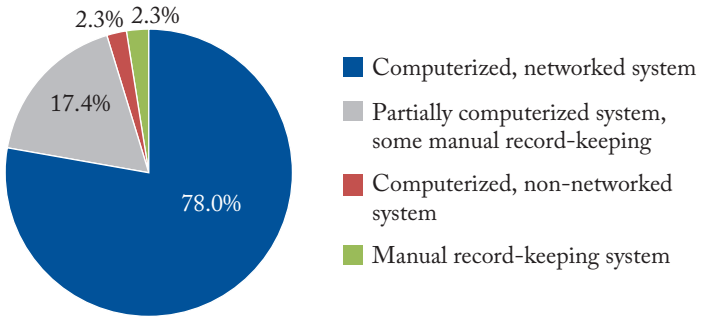
Information Management Systems

This section presents information about TL information management systems, including how records are maintained (computerized or manual), type of information management system, plans to upgrade in the next three years, which core NFLIS-Tox data elements were available in their case records, and reporting capabilities.

Overall, nearly 8 in 10 of the 218 TLs that provided information on the type of records management system they used reported having a computerized, networked system (*Figure 13*). Seventeen percent responded that their laboratory operates a partially computerized system with some manual record-keeping. Less than 5% of laboratories responded that their laboratory had a manual record-keeping system or had computerized, non-networked system.

Of the 211 TLs that responded to the question about the specific type of information management system used in their laboratories, 37% used software from the companies commonly used by the drug laboratories in the NFLIS-Drug program, including JusticeTrax, BEAST, Forensic Advantage, and STARLIMS. These vendors were almost exclusively identified by public laboratories (*Table 8*). One-fifth (21%) of TLs used an in-house information management system, which was especially true for private laboratories. Like NFLIS-Drug, the system may require some specialized programing to assist these laboratories in reporting to NFLIS-Tox.

Figure 13 Type of Record Management System Used by Responding Toxicology Laboratories



Source: 2017 NFLIS Toxicology Laboratory Survey.

Table 8 *Types of Information Management Systems Used by Responding Toxicology Laboratories, by Laboratory Ownership*

Information Management Systems Used among Laboratories with Computerized Systems	Overall		Public Laboratories		Private Laboratories	
	Number	Percentage	Number	Percentage	Number	Percentage
In-house information management system	45	21.3	16	13.3	29	32.2
JusticeTrax	37	17.5	37	30.8	0	0.0
BEAST (Bar Coded Evidence Analysis Statistics and Tracking)	25	11.8	24	20.0	1	1.1
Forensic Advantage	11	5.2	11	9.2	0	0.0
VertiQ	8	3.8	8	6.7	0	0.0
Horizon[1]	7	3.3	0	0.0	7	7.8
Orchard Harvest	5	2.4	0	0.0	5	5.6
Epic	5	2.4	4	3.3	1	1.1
CGM LABDAQ[1]	5	2.4	0	0.0	5	5.6
Labgen[1]	4	1.9	0	0.0	4	4.4
STARLIMS[1]	4	1.9	2	1.7	2	2.2
Multiple[1]	5	2.4	4	3.3	1	1.1
Other-specify	46	21.8	11	9.2	34	37.8
Not applicable	4	1.9	3	2.5	1	1.1
Total	**211**	**100.0**	**120**	**100.0**	**90**	**100.0**

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

Source: 2017 NFLIS Toxicology Laboratory Survey.

Appendix A

The 2017 National Forensic Laboratory Information System (NFLIS) Toxicology Laboratory Survey gathered information from the public and private toxicology laboratories (TLs) operating in the United States. At the outset of data collection, RTI International[1] identified 413 TLs that provided ante- and postmortem drug testing services. This number includes laboratories that are owned by State, county, and municipal governments, as well as owned and operated by private entities. Following is a description of the data collection and methodology used to collect survey data from these laboratories.

Instrumentation

The 2017 NFLIS Toxicology Laboratory Survey was designed based on the findings from the NFLIS Feasibility Study RTI conducted in 2016 across nine pilot site TLs. The draft survey was revised following comments from the DEA and refined following the guidance of experts in the toxicology and forensic pathology fields, who pilot-tested the instrument to identify problems with wording, content, or format.

Data Collection Strategy

A multimode approach was implemented that allowed for web, hard copy, and telephone options for TLs responding to the survey. Each survey had a unique identifier that linked it to the appropriate responding laboratory. To access the web version of the survey, login credentials and passwords were created and included in the lead and follow-up letters sent to the TL primary contacts.

Data collection began in late April 2017 with the initiation of the verification calling effort to ensure that appropriate contacts were documented before the June mailing and were eligible for the survey. The active survey data collection period lasted from June 1, 2017, through October 6, 2017. Surveys received through the survey website or via mail through November 6, 2017, were included in the final report data set.

The initial survey packet included lead letters from the DEA and RTI to primary contacts identified after the verification call effort. The DEA letter included information about the NFLIS program and encouraged respondents to complete the survey. The RTI letter contained information about the NFLIS program, the DEA's plans to expand NFLIS to include the NFLIS-Tox continuous data collection, directions for survey completion (including the username and login ID), and whom to contact with questions. The two lead letters, along with the hard copy survey, addressed and stamped return envelope, and directions for using the web survey were mailed together. Included in the initial mailing was a token of appreciation to all TLs. For this data collection, the token of appreciation was the fourth edition of Dr. Barry Levine's *Principles of Forensic Toxicology* reference book. Each packet was mailed via next-day parcel delivery.

Six weeks after mailing the lead materials, RTI mailed reminder letters to nonresponding TLs' primary points of contact to encourage survey response. About a week and a half after the reminder letters were mailed, prompting calls to nonresponding TLs were made. About 1 week after the prompting calls were completed, replacement packages, including the lead letters and the hard copy survey, were sent to nonresponding TLs. About four weeks after the replacement mailing, and about one month before the conclusion of data collection, nonresponding TLs were called to obtain data identified as critical (i.e., number of toxicology cases submitted to the laboratory in calendar year 2016 and types of toxicology services the laboratory provides). Successful efforts to obtain the critical item data were coded as survey critical item completes.

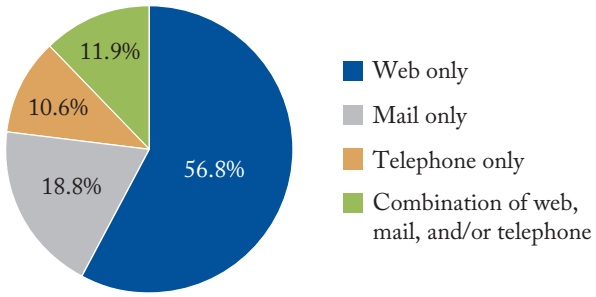
On August 25, 2017, Hurricane Harvey made landfall in the Houston, Texas, metropolitan area and in neighboring Louisiana. Because of widespread devastation, RTI determined that seven TLs in Texas and Louisiana were affected by the storm devastation. Those cases were placed on hold in RTI's case management system, so they would not be placed in the queue for nonresponse calls. In late September, RTI sent an e-mail to each of the seven TL contacts that requested the two critical items but acknowledged that the DEA understood if they could not provide this information given the hurricane damage and lasting effects. By the end of data collection, two of the seven TLs responded to the survey with critical items, and one returned a complete survey.

Response Rates and Survey Mode

Of the 392 toxicology laboratories that were determined to be eligible for the Toxicology Laboratory Survey, 58.9% provided complete surveys. By the last few weeks of data collection, the response rate increased to 68.1% based on progress made during nonresponse follow-up calls to obtain critical items.

Figure A.1 presents the response rates of TLs by survey mode (i.e., web only, mail only, telephone only, or some combination of survey mode). As shown, 57% of TLs provided web-only responses, followed by about 19% providing mail-only responses. Eleven percent of TLs provided a telephone-only response, which reflects respondents participating in the survey by providing only critical item responses.

Figure A.1 Response Rates, by Survey Mode[1]



[1] Percentages may not add to total because of rounding.

Source: 2017 NFLIS Toxicology Laboratory Survey.

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

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