National Forensic Laboratory Information System
Questions and Answers (Q&A)

1. **What is NFLIS?**

   ANSWER: Established in 1997, the National Forensic Laboratory Information System (NFLIS) is a program of the Drug Enforcement Administration (DEA), Diversion Control Division. 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 represents an important resource in monitoring illicit drug abuse and trafficking, including the diversion of legally manufactured pharmaceuticals into illegal markets. 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. Data in the NFLIS-Drug database consist of case-and-item–level or exhibit-level information.

   Starting in 2018, DEA will expand the NFLIS program to include two additional continuous drug surveillance components that collect drug-related mortality data from medical examiner and coroner offices ("NFLIS-MEC") and drug testing results from toxicology laboratories ("NFLIS-Tox") to supplement and complement the current NFLIS-Drug data from drug cases submitted to and analyzed by the Nation's forensic laboratories. More information about this expansion may be found on DEA's website (https://www.deadiversion.usdoj.gov/nflis/).

2. **What is the purpose of the NFLIS-Drug tables?**

   ANSWER: DEA publishes certain tables that interested parties can use for information about the most commonly reported substances found in drug seizure samples from the NFLIS-Drug data. The tables report results by frequently reported substances, by geography, and by year. The tables are publicly posted to provide easy access to the most frequently requested NFLIS-Drug data.

3. **How may I request copyright approval from DEA?**

   ANSWER: The public can use the tables and map images as needed. However, DEA requests appropriate citation. Please see DEA's NFLIS Citations Guide, available at https://www.nflis.deadiversion.usdoj.gov/DesktopModules/ReportDownloads/Reports/2k17NFLISCitationsGuide.pdf.

   If a journal or other publication requires official permission, please forward the form(s) to NFLIS@usdoj.gov.

4. **I'm not familiar with many of the substances or drugs described in the NFLIS-Drug table. Is there a reference guide I can use to better understand a specific drug?**

   ANSWER: DEA offers multiple sources to learn more about drugs.

   > DEA's Drug and Chemical Information webpage provides descriptions of selected substances and compounds: https://www.deadiversion.usdoj.gov/drug_chem_info/index.html.
   >
   > DEA's Drugs of Abuse resource guide might also be helpful: https://www.dea.gov/pr/multimedia-library/publications/drug_of_abuse.pdf.
   >
   > Finally, DEA also maintains a list of controlled substances: https://www.deadiversion.usdoj.gov/schedules/orangebook/c_cs_alpha.pdf.

5. **What does a count represent in the NFLIS-Drug data tables?**

   ANSWER: One count represents a single report in the NFLIS-Drug database. Drug cases secured in law enforcement operations (i.e., drug seizures) are submitted to forensic laboratories for analysis. An individual drug case can vary in size, and one case can consist of one or more drug items. Within each item, multiple drugs may be identified and reported. A single report equates to one documented occurrence of a drug. Each report is counted separately and added to the NFLIS-Drug data.

6. **What does "estimate" mean? How is this different from a "count"?**

   ANSWER: Unlike raw counts, which are simply the number of reports of drugs recorded and submitted by NFLIS-Drug laboratories, estimates are the statistically adjusted number of reports that account for nonreporting and nonsampled laboratories. This allows for inferences to be made of the total number of analyzed drug reports in the entire NFLIS-Drug "universe" of State and local forensic drug laboratories.

   NFLIS-Drug estimates are the weighted sum of the counts from each reporting laboratory. The analysis weight for estimating drug reports consists of two components, including the design weight and the nonresponse adjustment factor, the product of which is the final weight used in estimation. The design weight is based on the proportion of the caseload and item load of the NFLIS-Drug "universe" represented by the individual laboratory or laboratory system. The nonresponse adjustment factor adjusts the weights of the reporting and sampled laboratories to account for the nonreporting and nonsampled laboratories. Additionally, imputation methods are employed to adjust for missing monthly data in reporting laboratories due to technical and other reporting issues.

   For additional information on NFLIS-Drug methodology for calculating national estimates, please see the current *NFLIS Statistical Methodology* report at https://www.nflis.deadiversion.usdoj.gov/DesktopModules/ReportDownloads/Reports/NFLIS-2017-StatMethodology.pdf.

7. **Each public NFLIS-Drug table indicates that the results are only data that were submitted to the laboratories and analyzed by a certain date. Are there remaining cases that have not been analyzed by the date provided in the table?**

   ANSWER: Yes. There are instances when laboratories are unable to transmit data to NFLIS-Drug by the established cutoff date (typically three months after the data collection period of interest). These instances may be due to backlog in laboratory work or other operational issues preventing a laboratory's transmission of data. Although past analyses have shown that approximately 95% of cases submitted during an annual period are analyzed within three months of the end of the annual period (not including the approximately 30% of cases that are never analyzed), there can be remaining cases from the data collection period of interest that participating laboratories did not analyze and/or submit.

8. **Some of the NFLIS-Drug tables do not provide an estimate for a particular substance or drug. Instead, there is a note that the estimate does not meet the "standards of precision and reliability." What does this mean?**

   ANSWER: For some drugs, such as cannabis/THC and cocaine, thousands of reports are submitted annually, allowing for reliable national estimates to be computed. For other drugs, reliable and precise estimates cannot be computed because of a combination of low report counts and substantial variability in report counts between laboratories. Thus, DEA established a suppression rule for the NFLIS-Drug data collection. Precision and reliability of estimates are evaluated using the relative standard error (RSE), which is the ratio between the standard error of an estimate and the estimate. NFLIS-Drug estimates with an RSE greater than 50% are suppressed and not shown in the NFLIS-Drug tables.

9. **Is it acceptable to aggregate drug estimates or raw counts if I am interested in understanding a set of drugs?**

   ANSWER: Yes. The NFLIS-Drug national estimates and raw counts for any given drug are mutually exclusive with any other reported drug estimate or count. In other words, each particular substance is not being counted twice. If you are interested in creating one estimate or count of multiple substances (adding the two benzodiazepines alprazolam and clonazepam together, for example), it is acceptable to simply add these numbers together. When aggregating data, please be sure to avoid combining estimates together with counts; the method of deriving estimates is different from that of deriving counts.

   Please note, however, that it may not be possible to create a true estimate or count of a common set, or category, of drugs. For example, generating a total of all benzodiazepines is not possible because not all benzodiazepines are included in the tables; thus, some would be missing from the total.

10. Can I compare years using NFLIS-Drug data?

ANSWER: National NFLIS-Drug estimates for an individual drug are comparable from year to year for all years since 2001.[1] Estimates are based on cases and items submitted to laboratories during the reporting period and analyzed within three months of the end of the reporting period. The estimation procedures account for multiple drugs per item. Estimates are presented in tabular form rather than in separate charts or graphs simply because of the sheer number of drugs included in these tables. For 2001 through 2015 data, up to three drugs could be reported to NFLIS-Drug and counted in the estimation process for each drug item (or exhibit) analyzed by a laboratory in the NFLIS-Drug program.

Beginning with the 2016 NFLIS-Drug data, all drugs reported in an item are now counted in the estimation process. This change ensures that the estimates will take into consideration *all* reported substances, including emerging drugs of interest that may typically be reported as the fourth or fifth drug within an item. Although this change was not applied to reporting periods before 2016, the 2016 data showed that 99.97% of drug reports are captured in the first, second, or third drug report for any item; therefore, no statistical adjustments were deemed necessary to maintain the trend with prior years.

Graphs comparing year-to-year trends for national and regional estimates for a select set of drugs appear in the NFLIS-Drug annual and midyear reports. These graphs focus on 11 drugs of interest (oxycodone, hydrocodone, alprazolam, fentanyl, buprenorphine, amphetamine, cannabis, cocaine, methamphetamine, heroin, and MDMA).

Importantly, raw counts for each year of NFLIS-Drug data are affected by the number of reporting laboratories for that time frame. *Because the number of NFLIS-Drug laboratories may vary each year, DEA does not recommend comparing year-to-year trends using raw counts from NFLIS-Drug published tables*. The differences in counts or estimates may be more reflective of differences in laboratory reporting rather than changes in drug abuse or trafficking.

11. I noticed that the source lines on the NFLIS-Drug tables provide a date when the data were generated. Why is this important?

ANSWER: The NFLIS-Drug laboratories provide data to DEA on a monthly basis. It is common for these monthly submissions to include some number of cases where the date of submission for analyses is one or more months (or even years) prior to the date the analyses were completed and reported. This delay in reporting may be related to ongoing investigations, plea bargains, or other causes that delay the analyses and subsequent reporting to DEA. Thus, the NFLIS-Drug database is dynamic—even across years—and queries of the data may result in updated drug counts for more recent years. Therefore, it is important to note the date on which the data were generated because it underscores the

[1] The current NFLIS estimation methodology was introduced in the 2010 NFLIS Midyear Report and included national and regional estimates for 2001 through 2010. Estimates presented in NFLIS-Drug reports published before 2010 would not be comparable with the current estimates.

reality that these tables reflect a snapshot in time and may not be comparable with data queries generated on a different date.

12. Why is the list of substances or drugs included in the NFLIS-Drug tables slightly different from year to year?

ANSWER: Within each NFLIS-Drug annual table, the 60 most frequently identified drugs are based on prevalence for that given year. Thus, certain drugs may enter or exit the list based on their prevalence. Changes in prevalence of a drug can be due to street-level supply and demand. Additionally, the emergence and increased prevalence of some drugs may force others out of the list of most frequently identified drugs.

13. How do you determine which drugs are reported in the NFLIS-Drug tables?

ANSWER: NFLIS-Drug accepts the results from the participating laboratories. Drugs listed on the laboratory's analysis report are included in the NFLIS-Drug database. However, it is important to note that each laboratory may have different testing procedures and thresholds. Thus, each laboratory has different criteria for detecting drugs in their samples; thus, they will vary in the way in which these drugs are identified and therefore reported to the NFLIS-Drug database.

The NFLIS-Drug data tables present the most frequently requested NFLIS-Drug data from third parties. Specifically, the most common data requests to DEA include tables presenting the most frequently identified drugs overall (national and by State) and the most frequently identified fentanyl and fentanyl-related compounds, synthetic cannabinoids, and synthetic cathinones by State.

14. Are all the substances listed in the charts controlled?

ANSWER: Forensic laboratories analyze drug seizure samples for the presence or absence of controlled substances. The laboratories may report drugs (controlled or noncontrolled), adulterants, diluents, or chemicals. NFLIS-Drug accepts all reported results from participating laboratories. Therefore, the NFLIS-Drug database is not limited to controlled substances.

15. Do the drug analysis results reflect all crime laboratories in the United States?

ANSWER: No. The NFLIS-Drug data collection receives data from participating laboratories only. However, NFLIS-Drug has a wide coverage of State and local laboratories. More than 300 State and local forensic laboratories in the United States perform drug analyses each year. As of July 2017, 50 State laboratory systems and 102 local laboratory systems, representing 289 individual laboratories, are participating in NFLIS-Drug. In 2016, approximately 1.5 million drug analysis records were reported to NFLIS-Drug. The NFLIS-Drug participation rate, defined as the percentage of the national drug caseload represented by laboratories that have joined NFLIS, was more than 98% as of July 2017.

Thus, although the data do not represent all forensic laboratories, NFLIS-Drug is a valuable, unique source of information for monitoring and understanding drug abuse and trafficking in the United States. However, it is important to note that not all States are equally covered. Some States are represented by a greater proportion of forensic laboratories. Therefore, these proportions may influence the number of reported substances and their comparability across States.

Given these issues, in its reports, DEA generally presents national and regional estimates that are weighted to be representative of all State and local forensic drug laboratories in the United States in NFLIS-Drug reports.

16. Why do the raw counts differ from the annual and midyear estimates?

ANSWER: Annual and midyear estimates are based on weighted and imputed data to make inferences to the larger NFLIS-Drug “universe” of State and local forensic drug laboratories that include nonreporting and nonsampled laboratories. Raw counts have not undergone any weighting or imputation adjustments to account for laboratory nonresponse.

17. I have noticed that some NFLIS-Drug data are being reported by State, region, or locality in the NFLIS reports. Is this the location of the drug seizure or the address of the laboratory that analyzed the sample?

ANSWER: The location for NFLIS-Drug data is based on the location where the drug seizure occurred. However, there are cases where the location of the drug seizure is missing. In these situations, NFLIS-Drug will use the submitting agency’s or the submitting laboratory’s address.

18. Are the NFLIS-Drug tables that show similar types of drugs (e.g., fentanyl and fentanyl-related compounds) comprehensive lists of all those types of drugs?

ANSWER: No. Because of the nature of the NFLIS-Drug data (i.e., the data represent reports of drugs that are seized by law enforcement actions and analyzed by crime laboratories), it is highly likely that some drugs or substances have not yet been seized by law enforcement and reported by NFLIS-Drug laboratories.

For example, the NFLIS-Drug fentanyl and fentanyl-related compounds table displays selected fentanyl-related compounds that have been reported by participating NFLIS-Drug laboratories. There are likely other fentanyl-related compounds that have not yet been seized by law enforcement and therefore are not currently being reported by NFLIS-Drug laboratories. In addition, only the most popular fentanyl-related compounds reported by NFLIS-Drug laboratories during the specified period are shown.

19. How should I use the NFLIS-Drug data from the maps?

ANSWER: The published maps are taken directly from official NFLIS-Drug reports. Please refer to the source report for detailed information regarding how to interpret map data. Overall, you can use the maps to identify hotspots for a particular drug.

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20. When will the NFLIS-Tox and NFLIS-MEC data be available?

ANSWER: In the next few years, DEA will expand the NFLIS program to include two additional continuous drug surveillance components that will collect drug-related mortality data from medical examiner and coroner offices ("NFLIS-MEC") and drug testing results from toxicology laboratories ("NFLIS-Tox") to supplement and complement the current NFLIS-Drug data from drug cases submitted to and analyzed by the Nation's forensic laboratories.

Although DEA does not expect to be able to publish NFLIS-MEC and NFLIS-Tox data from these two new continuous data collections in the immediate future, DEA will publish the results of two recent surveys of these two types of respondents in 2018.

More information about the NFLIS program expansion may be found on DEA's website at https://www.deadiversion.usdoj.gov/nflis/.