Guidebook

Forensic Technology
CENTER OF EXCELLENCE

A program of the National Institute of Justice

Drug Surveillance Initiatives:
An FTCOE Repository of Resources

FTCOE Contact
Jeri Ropero-Miller, PhD, F-ABFT
Principal Scientist, FTCOE
jerimiller@rti.org

NIJ Contact
Danielle McLeod-Henning, MFS
Physical Scientist
Office of Investigative and Forensic Sciences
danielle.mcleod-henning@usdoj.gov

Published: **December 2023**

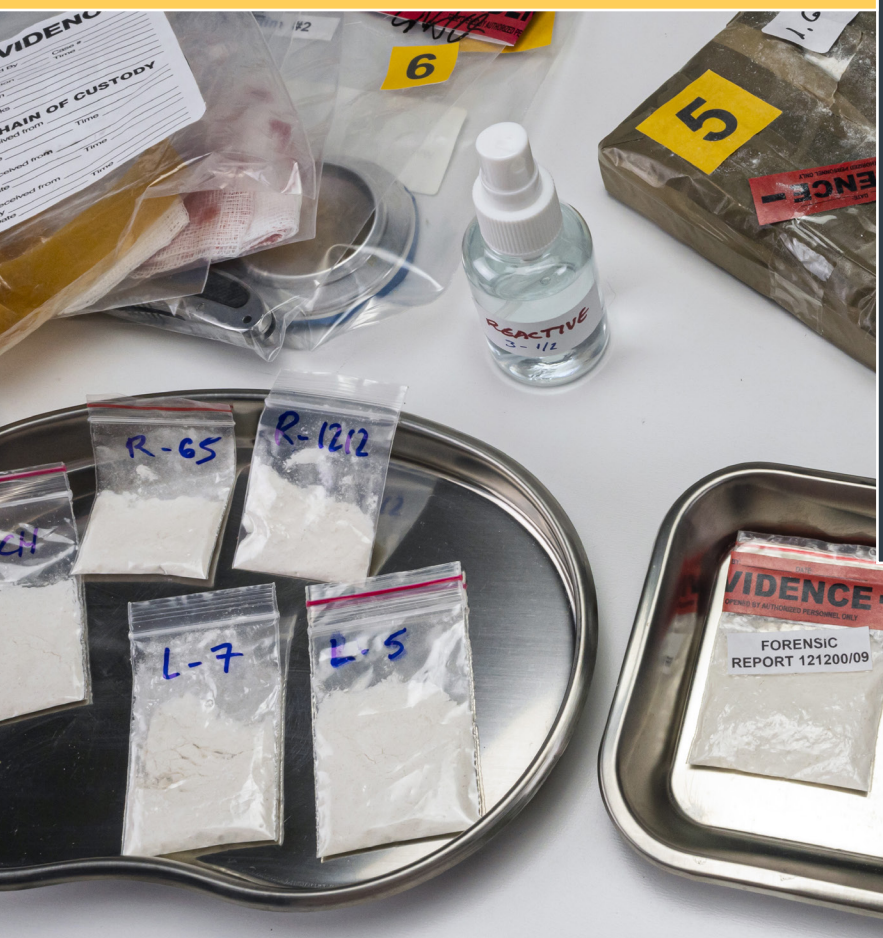
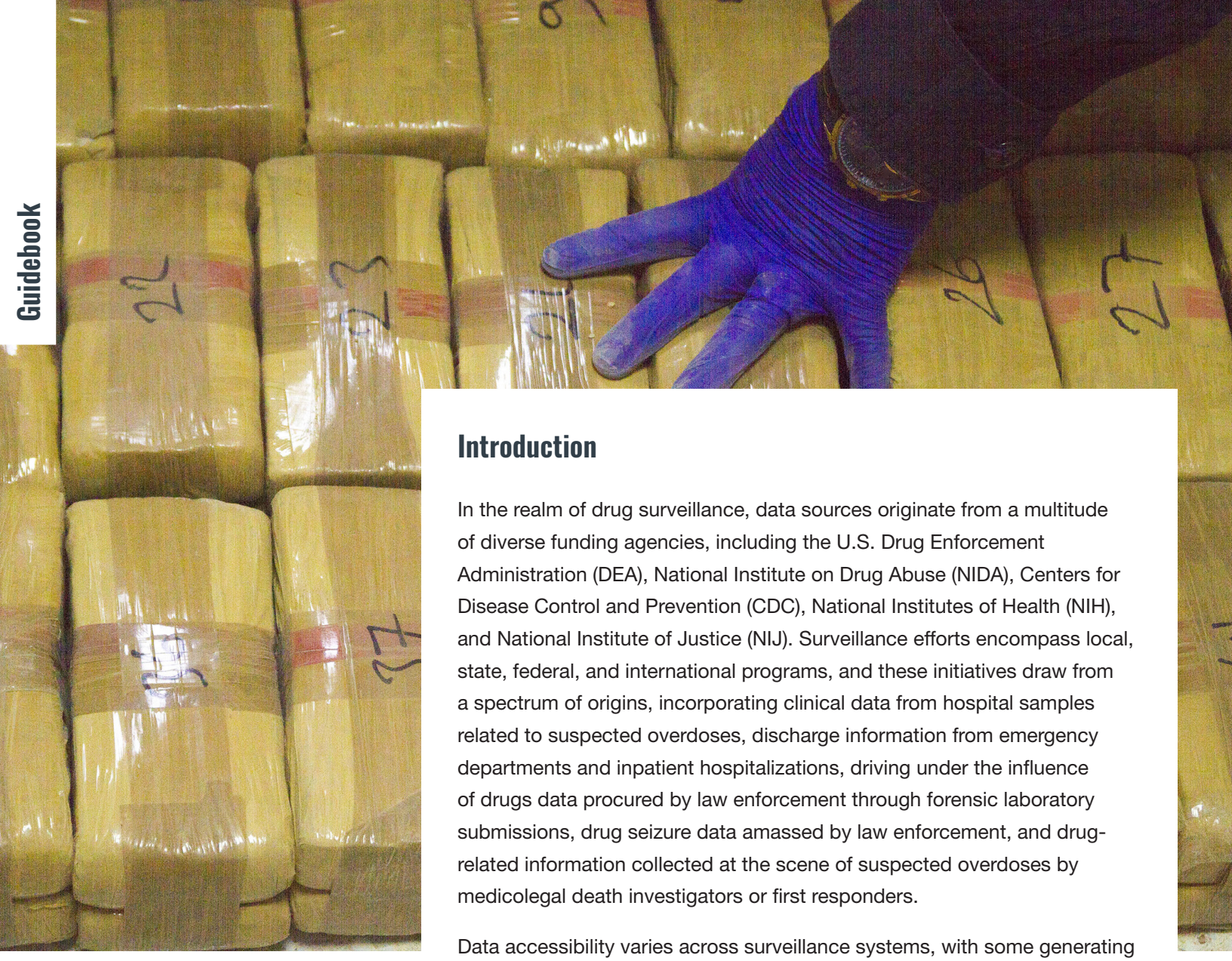


Table of Contents



Introduction

In the realm of drug surveillance, data sources originate from a multitude of diverse funding agencies, including the U.S. Drug Enforcement Administration (DEA), National Institute on Drug Abuse (NIDA), Centers for Disease Control and Prevention (CDC), National Institutes of Health (NIH), and National Institute of Justice (NIJ). Surveillance efforts encompass local, state, federal, and international programs, and these initiatives draw from a spectrum of origins, incorporating clinical data from hospital samples related to suspected overdoses, discharge information from emergency departments and inpatient hospitalizations, driving under the influence of drugs data procured by law enforcement through forensic laboratory submissions, drug seizure data amassed by law enforcement, and drug-related information collected at the scene of suspected overdoses by medicolegal death investigators or first responders.

Data accessibility varies across surveillance systems, with some generating comprehensive reports and others offering data through static or searchable databases, dashboards, or alternative data interface tools.

This review summarizes resources pertaining to drug surveillance systems by considering the diverse funding agencies and types of surveillance in play. It provides users of surveillance system data with a resource to better understand data usage, interpretation, limitations, and analysis. It is important to note that this compilation is not exhaustive, as the landscape of drug surveillance initiatives is expansive. The resources presented here are categorized by federal and international entities. The Forensic Technology Center of Excellence (FTCOE) is committed to periodically updating this document to ensure its relevance. For suggestions or additions to enhance the comprehensiveness of this resource, please contact ForensicCOE@rti.org.

FEDERAL RESOURCES

U.S. Department of Justice

U.S. Drug Enforcement Administration

The DEA Diversion Control Division's (DCD's) mission is to "prevent, detect, and investigate the diversion of controlled pharmaceuticals and listed chemicals from legitimate sources while ensuring an adequate and uninterrupted supply for legitimate medical, commercial, and scientific needs." In addition, the DCD monitors new and emerging substances that may pose a threat and meet the requirements for scheduling as a controlled substance or controlled precursor chemical. The DEA DCD funds the National Forensic Laboratory Information System (NFLIS) and the DEA Toxicology Testing Program (DEA TOX), two programs funded that complement other DEA intelligence efforts to monitor controlled and noncontrolled substances in the United States.

National Forensic Laboratory Information System

Since 1997, the DEA DCD has funded NFLIS to collect and report data on controlled and noncontrolled substances. Participating laboratories in the United States submit results of drug testing data to NFLIS. This component of NFLIS is called NFLIS-Drug. Each month, participating laboratories report results from drug chemistry analyses on case items that law enforcement agencies submit to the laboratory. There are approximately 280 laboratories that participate in NFLIS-Drug that represent state, local, and federal laboratories in each state, including the District of Columbia and Puerto Rico.

In 2018, DEA began to enhance the NFLIS program by introducing two new sources of drug monitoring: one through NFLIS-Tox, which collects antemortem and postmortem toxicology data to complement NFLIS-Drug, and NFLIS-MEC, which was created to collect medical examiner and coroner (MEC) data elements such as cause and manner of death for all cases in which postmortem toxicology testing was conducted. Both of these NFLIS components are still developing. As a result, the content presented in this document is for NFLIS-Drug data only.

Resources

Each year, NFLIS generates and posts a midyear report and an annual report on their website. These reports highlight national and regional estimates of the top 25 most identified drugs and national and regional trends of the top 10 most identified drugs.[1,2] In addition, these include a selection of data from specific drug categories such as narcotic analgesics and synthetic cannabinoids. NFLIS publishes yearly reports on special topics of interest to DEA and the community. The most recent published special report was on gabapentin and pregabalin reported to NFLIS from 2011 to 2020.[3] There is a significant time lapse between data and when the reports are published. For example, the annual report is usually published in September of the year following the referenced data whereas the midyear report is published in April following the year of the referenced data. In the last several years, DEA has made strides to provide more timely data to the community. This has been accomplished through snapshot reports that include raw drug counts submitted by NFLIS laboratories from the NFLIS-Drug Data Query System (DQS) on new drug reports during the quarter, highlights of specific drug categories, and upward trends of specific drugs. These raw drug counts are different from drug estimates because estimates are statistically adjusted based on NFLIS-Drug reporting and sampled laboratories, as described in the NFLIS-Drug Frequently Asked Questions document. NFLIS updates the web-accessible NFLIS Substance List with names, synonyms, chemical names, formulas, International Chemical Identifiers, and structures of all relevant new substances during the quarter at the same time as the quarterly snapshot reports. In 2023, DEA further expanded more rapid access to NFLIS-Drug data by creating a publicly available DQS that allows public access to a searchable database of all substances within NFLIS-Drug

1. Diversion Control Division. (2023). National Forensic Laboratory Information System: NFLIS-Drug 2022 midyear report. U.S. Drug Enforcement Administration, U.S. Department of Justice. https://www.nflis.deadiversion.usdoj.gov/publicationsRedesign.xhtml
2. Diversion Control Division. (2022). National Forensic Laboratory Information System: NFLIS-Drug 2021 annual report. U.S. Department of Justice, U.S. Drug Enforcement Administration. https://www.nflis.deadiversion.usdoj.gov/publicationsRedesign.xhtml
3. U.S. Drug Enforcement Administration, Diversion Control Division. (2022). NFLIS-Drug special report: Gabapentin and pregabalin reported in NFLIS, 2011–2020. U.S. Drug Enforcement Administration. https://www.nflis.deadiversion.usdoj.gov/publicationsRedesign.xhtml

(since the last annual report). Although this does not include the current year's data, it does provide the ability to query and visualize NFLIS-Drug data such as the top 50 most identified drugs, specific drug classes, and co-reported drugs. Data querying within the public DQS provides visualizations such as line graphs, bar graphs, pivot tables, and state mapping.

Limitations

The following includes limitations of the NFLIS program data collection as reported by the program, discussions with the community, and reports published by entities other than NFLIS.

- NFLIS requests that laboratories report data monthly, but there are times that laboratories cannot meet this request. For example, laboratories may be upgrading their laboratory information management system, which affects NFLIS data submissions.
- Sometimes laboratories will analyze backlog cases resulting in only a small number of submissions for the current year.
- Data from the previous snapshot reports are publicly available 1–2 months after the quarter; however, these only include select data. For example, the March Snapshot Report may include the top five most identified substances in NFLIS-Drug (e.g., methamphetamine, cocaine, fentanyl, cannabis/THC, heroin), whereas in the June Snapshot Report this is replaced with the top five reported synthetic cannabinoids during that quarter.
- A Public DQS is available but only includes annual report data (e.g., data from 2022 are accessible to the public in Fall 2023). However, DEA and submitting laboratories have access to data submitted and uploaded to the NFLIS database daily.
- Policies that affect data submissions to NFLIS vary between laboratories. Not all laboratories submit all data elements (e.g., purity, weight). Some laboratories do not submit noncontrolled substances even if confirmed by laboratory testing. This is problematic because NFLIS-Drug may not receive new or emerging substances for some states because they are not controlled federally or by their state. Often, reference standards are not available when a laboratory suspects a new or emerging substance or they do not have a validated method to report the substance. In these cases, the laboratory may not report the substance to NFLIS-Drug because it is not confirmed.
- Drugs encountered by law enforcement may be screened with field drug testing devices and are only screened and confirmed by a laboratory if a case goes to trial.
- There is not a complete census of drug testing laboratories in the Unites States participating and reporting to NFLIS-Drug.

Contact information

Email: NFLIS@dea.gov

DEA Toxicology Testing Program

Another program funded by the DEA DCD is the DEA TOX. This program started in 2019 and analyzes biological samples generated from drug overdose victims for identification of synthetic drugs. Specimens are submitted to a DEA-contracted toxicology testing laboratory by medical and law enforcement agencies. Blood is the preferred matrix for analysis, and any submitted samples may only come from medical facilities or law enforcement partners. Analyses must be requested through the medical facilities or law enforcement partners formal email system (i.e., no personal email accounts). To qualify for re-analysis, samples should come from patients where traditional drug screening produced negative results. The DEA covers the cost of the analysis, with shipping and packaging paid for by the submitting entity. Results take about 3 weeks.

Samples sent to the DEA-contracted toxicology laboratory are tested for drugs that are not typically analyzed in other forensic or hospital laboratories. The testing laboratory currently has a mass spectral library of 1,218 drugs, with 962 of those being new psychoactive substances.

Resources

The DEA TOX program generates a quarterly report of data and started generating an annual report as of 2022. Both reports include data throughout their respective timeframes and are publicly available on the DEA TOX website. These reports may contain data broken down into results from the following groupings: new psychoactive substances, traditional illicit drugs, prescription and over-the-counter drugs, dietary supplement stimulants, precursors/additives/impurities (e.g., xylazine), drug products (e.g., multiple drugs detected in a drug product sample such as amphetamine, cocaine, and opioids) and drug paraphernalia.[4] The groupings may vary from report to report depending on the analysis performed.

Limitations

- Reports do not generate encapsulating data for all states. Reports are generated based on laboratory submissions.
- Currently, University of California, San Francisco is the only DEA-contracted toxicology laboratory performing the analysis for this program.

DEA Contact information

Email: NFLIS@dea.gov

DEA TOX Contact information

Email: DEATOX@dea.gov

4. Drug Enforcement Administration Toxicology Testing Program.(2023). Quarterly report — First quarter 2023. U.S. Department of Justice, Drug Enforcement Administration, Diversion Control Division, Drug and Chemical Evaluation Section. https://www.deadiversion.usdoj.gov/dea_tox/quarterly_reports/1st_Quarter_2023_DEA_TOX_06162023.pdf

Federal Bureau of Investigation

The Federal Bureau of Investigation (FBI) mission is "to protect the American people and uphold the Constitution of the United States." Their vision is to be ahead of any threats to the United States. As of January 2021, the FBI retired their Summary Reporting System, and the National Incident-Based Reporting System (NIBRS) was adopted nationwide as the standard for law enforcement crime data reporting in the United States. The shift to NIBRS represents an emphasis on incident-based reporting, including case details, rather than a summary approach that captures only the most serious offense within an incident.

National Incident-Based Reporting System

NIBRS is a program within the FBI that is a part of the Uniform Crime Reporting (UCR) program, which compiles data reported by more than 18,000 various law enforcement agencies. Nationwide, all 50 states and the District of Columbia report to NIBRS; it covers 66% of the U.S. population, equaling more than 37 million people. Law enforcement agencies can report Group A (more serious crimes, including murder and robbery) or Group B offenses (e.g., loitering or driving under the influence) and can input up to 10 different offenses per report. Along with Group A and B offenses, there is comprehensive reporting categories for drug/narcotic offenses: cultivating, manufacturing, distributing, selling, buying, using, possessing, transporting, and importing. Law enforcement can choose up to three of these activities when reporting to the program. The suspected drug type and the quantity are also reported. They can report up to three types of drugs per incident; if there are more than three, then the two most important are reported while the presence of more drug types is indicated by selecting the drug type "Over 3 Drug Types." There are 16 drug types that users can input into the program, which include specific drugs and non-specific groupings.

Resources

Various reports have been created and are publicly available on both the Bureau of Justice Statistics and the FBI websites. On the FBI website, there are pages that compile all reports and publications NIBRS creates each year.

The Law Enforcement Agency Reported Crime Analysis Tool is an additional tool that uses data taken from NIBRS and information collected from other federal data sources. This displays information in "crime view" and "victim view." The crime view shows the offenses committed, whereas the victim view shows information on the victims of crimes. Both pages have a map on their front page displaying the population covered by NIBRS. Underneath the map are a few groupings of data, showing different data on both pages. Users can filter data by geography, crime, victim, and relationship. The year the data are taken from can also be changed.

Limitations

- NIBRS data contain information from drug screening field tests and laboratory confirmations but only categorize a subset of substances.

Contact information

Email: UCR-NIBRS@fbi.gov

National Institute of Justice

NIJ is the research, development and evaluation agency of the U.S. Department of Justice. It focuses on enhancing our understanding of crime and justice through scientific research by funding projects in various justice-related areas. NIJ funds the development and maintenance of the NPS Discovery program, managed by the Center for Forensic Science Research and Education (CFSRE). This surveillance program employs a diverse and comprehensive approach to identify emerging drugs and disseminate the information to stakeholders.

NPS Discovery

NPS Discovery is run by CFSRE, which is a program of the Fredric Rieders Family Foundation. CFSRE offers multiple options for trainings and education, both in person and as webinars, throughout the year. Aside from education, they also perform a wide variety of research. This includes research in forensic toxicology, forensic biology, and forensic chemistry.

Resources

The NPS Discovery program is a drug early warning system that helps detect novel psychoactive substances (NPS) and report on them for public health and safety stakeholders. MEC offices, toxicology laboratories, clinical laboratories, and crime laboratories from across the United States submit samples for research analysis to the CFSRE NPS Discovery program. NPS Discovery performs the analytical testing on toxicology samples and drug material to determine the types of substances in these samples. Often, these analyses are expanded in scope and identify novel substances. Novel substances identified through NPS Discovery are distributed in multiple forms that can be found on their website, such as through new drug "monographs." These are initial reports on NPS as they are identified from toxicology samples and drug materials. This information is publicly available, and users can download monographs and their corresponding gas chromatography-mass spectrometry (GC-MS) and liquid chromatography quadrupole time-of-flight mass spectrometry (LC-QTOF-MS) spectra from the CFSRE website. All identified NPS are also included in a searchable table on their website, from which users can download the monographs.

NPS Discovery also has an "intelligence" initiative, which displays NPS that have been observed for sale on the web but have not yet been identified in any toxicology samples or drug material samples. The specific NPS are displayed like the monographs but with less information provided. Once a drug is analyzed from this list, the findings move to the monographs page.

In addition to monographs and intelligence initiative, the NPS Discovery program also develops quarterly trend reports. These reports display information related to NPS prevalence, positivity, and turnover. The reports are available for NPS benzodiazepines, NPS opioids, NPS stimulants and hallucinogens, and synthetic cannabinoids. Information is available for both seized drugs and toxicology specimens, with a majority being toxicology data.

Public alerts are created by NPS Discovery based on information received at the time of first reports of NPS. The reports highlight one specific drug and detail currently known information. For example, the December 2023 public alert focused on medetomidine/dexmedetomidine as a toxic adulterant.[5]

The Drug Checking page of the NPS Discovery program contains quarterly drug checking data collected in collaboration with the Philadelphia Department of Public Health.

The American College of Medical Toxicology collaborates with CFSRE to produce clinical reports. These are displayed as study group information within the Toxicology Investigators Consortium. These quarterly reports include overall findings and the breakdown of findings from each site for sites across the United States.

Limitations

- Monograph data are not externally peer-reviewed.
- Samples received and analyzed by NPS Discovery originate from across the United States, but this is not a nationally representative sample of either toxicology samples or drug material.

CFSRE Contact information

Email: contact@cfsre.org

NPS Discovery Contact information

Email: npsdiscovery@cfsre.org

5. CFSRE. (2023, December). *Toxic adulterant alert: Medetomidine/dexmedetomidine*. https://www.cfsre.org/images/content/reports/public_alerts/Medetomidine_Public_Health_Alert__Final.pdf

Office of National Drug Control Policy

High Intensity Drug Trafficking Areas

The High Intensity Drug Trafficking Areas (HIDTA) program is funded under the Office of National Drug Control Policy. Currently, there are 33 HIDTAs spread across 50 states, Puerto Rico, the U.S. Virgin Islands, and the District of Columbia. These HIDTAs are overseen by Executive Boards comprising an equal number of regional leaders from federal and non-federal (state, local, and tribal) law enforcement.

Overdose Detection Mapping Application Program

The Overdose Detection Mapping Application Program (ODMAP) was developed and is managed by the Washington/Baltimore HIDTA. ODMAP serves as a tool that provides near real-time data on suspected drug overdoses. It facilitates communication between public safety and health officials and record management systems, which helps track suspected overdoses. ODMAP allows users to gather data on both suspected fatal and non-fatal overdoses, across different jurisdictions. This helps communities collaborate in responding to overdoses. First responders are required to submit four data points for a suspected overdose: (1) date/time of the incident, (2) location of the incident, (3) outcome (fatal/non-fatal), and (4) whether naloxone was administered. The National Map incorporates overdose events, enabling agencies to examine overdoses nationwide that affect their areas of responsibility. As of December 2022, more than 4,200 agencies representing public health, law enforcement, fire/emergency medical services, MEC, and other stakeholders in all 50 states, the District of Columbia, and Puerto Rico use the system, with more than 1.64 million suspected overdoses recorded.

Resources

Publicly available materials are limited to periodic "Spotlight Series," focusing on local initiatives using ODMAP data to address opioid overdoses. Government-approved users have access to ODMAP data in a controlled unclassified information environment, which is only released to authorized personnel. Recipients of these data must have a legitimate need and the right to access the information for their criminal justice and public health functions. The National Map serves as a tool for decision-makers to view and analyze nationwide data submitted to ODMAP.

Limitations

- Data are available only to approved government agencies.

Email via webform: https://www.odmap.org:4443/Contact

U.S. Department of Homeland Security

U.S. Customs and Border Protection

U.S. Customs and Border Protection (CBP) is the nation's largest federal law enforcement agency charged with securing the nation's borders and facilitating international travel and trade. CBP monitors the nation's more than 300 ports of entry, and their officers have broad law enforcement authorities. CBP drug seizures are entered into an internal reporting system, and data are made available through a public data portal.

Resources

The CBP drug seizure statistics dashboard includes data for fiscal years 2020 through fiscal year to date (FYTD) 2024 for seizures by both the U.S. Border Patrol (USBP) and the Office of Field Operations (OFO). Users can view monthly seizures by weight or by counts of seizure events. Filter options include component, fiscal year, drug type, region, land, and area of responsibility. CBP provides these data for public use and analysis. All analyses produced using these datasets are considered unofficial unless provided directly from CBP.

Limitations

There are a limited number of drug types that are reported individually and a broad category of "Other Drugs." OFO Other Drugs include amphetamine, ephedrine, hashish, marijuana plants, opium, oxycodone, precursor chemicals, prescription, chemical, and other uncategorized drugs. USBP "Other Drugs" include all drugs seized by USBP except cocaine, fentanyl, heroin, marijuana, methamphetamine, and ecstasy.

Contact information

https://www.cbp.gov/about/contact

U.S. Department of Health and Human Services

Centers for Disease Control and Prevention

The Centers for Disease Control and Prevention (CDC) mission is to work "24/7 to protect America from health, safety and security threats, both foreign and in the U.S." They have a wide variety of stated goals and objectives for their organization, which can be found on CDC's website. The CDC administers many funding opportunities and grants, which are open to both research and non-research public health programs. CDC offers several resources relevant to drug surveillance, among them the Drug Overdose Surveillance and Epidemiology (DOSE) system and the State Unintentional Drug Overdose Reporting System (SUDORS).

Overdose Drug Surveillance

CDC has the DOSE system that provides information on non-fatal drug overdoses reported by health departments. DOSE includes both the non-fatal overdose syndromic surveillance data and the non-fatal overdose emergency department and inpatient hospitalization discharge data. Forty-seven states and the District of Columbia participate in non-fatal overdose syndromic surveillance data collection; 25 states provide discharge data to DOSE.

The SUDORS program was created to better understand the reasoning for overdose deaths. Data are received from 47 states and the District of Columbia. Each individual site collects data from death certificates, MEC reports, and toxicology reports and then submits these data online.

Resources

Both DOSE and SUDORS provide data online through reports, peer-reviewed publications, and separate dashboards to visualize the data. Data are also exported into an Excel spreadsheet. Trends are shown by month, state, and drug. Drug data within the SUDORS dashboard includes heroin, cocaine, methamphetamine, benzodiazepines, non-opioid sedatives, prescription opioids, any opioids, illegally made fentanyls, and any stimulants. Data for SUDORS can also be shown by sex, race/ethnicity, and state. Both DOSE dashboards allow for the selection of either all opioids, heroin, or all stimulants without specific drug names (other than heroin). For both DOSE dashboards, the state-level data as well as age are shown.

Limitations

- Not all participating states report both DOSE non-fatal overdose emergency department data and inpatient hospitalization discharge data. Data within this dashboard are reported for 2022.
- Data in the DOSE non-fatal overdose syndromic surveillance data currently go through June 2023.
- For both DOSE dashboards, individual drugs are not shown, only stimulants, heroin, and opioids.
- SUDORS dashboard data go to 2021.

Contact information

Email via webform: https://wwwn.cdc.gov/dcs/ContactUs/Form

National Vital Statistics System

The National Vital Statistics System (NVSS), managed by the National Center for Health Statistics (NCHS) within CDC, serves as a crucial source for mortality statistics. This system gathers and disseminates information regarding deaths resulting from drug overdoses, detailing the substances involved and the locations of these deaths throughout the United States. The data are sourced from death certificates and includes provisional information from all 50 states and the District of Columbia.

Resources

To provide insight into drug overdose deaths, the NVSS offers various resources, including data visualizations, Excel exports, online databases, and reports. Annually, CDC releases several reports that use NVSS data, delving into different aspects of drug overdose deaths. CDC also publishes a comprehensive set of mortality death data files by calendar year, allowing for export to Excel files and sorting. The website grants access to CDC WONDER, a mortality database offering searchable and customizable tabulated final and provisional data, sortable by drug/alcohol-induced deaths. For the timeliest vital statistics, the Vital Statistics Rapid Release program provides access to provisional data reports, datasets, and visualizations. Additionally, NCHS offers tabulated data specifically focused on drug poisoning deaths at the national, state, and county levels.

Limitations

- Data releases have an approximate 2-year lag.
- Provisional drug overdose data lags about 4–6 months.

Contact information

https://wwwn.cdc.gov/dcs/ContactUs/Form

National Institute on Drug Abuse

NIDA is a federal research institute that leads in funding biomedical research with regards to drug use and addiction. One project funded by NIDA is the National Drug Early Warning System (NDEWS). The NDEWS program provides links to other programs not funded by NIDA, such as the Florida Drug-Related Outcomes Surveillance and Tracking system (FROST) and the State and National Overdose Web (SNOW). These programs are led by NDEWS co-investigators.

National Drug Early Warning System

The NDEWS is an online program that uses surveillance to detect early signs of potential drug epidemics. Data are received from 17 sentinel sites, which are located throughout the United States and include universities, departments of health, and law enforcement agencies. These sites submit indicator data throughout the year and also submit annual reports. NDEWS receives funding from NIDA and operates through the Coordinating Center, which has staff from the University of Florida, New York University, and Florida Atlantic University. They have a Scientific Advisory Group, comprising 12 scientists in the United States and four experts from government agencies, that advises NDEWS on data interpretation and harmonization and looks at relevant indicators.

Resources

Data are available to view using an interactive dashboard under the data tab on the NDEWS website, which displays data from the SNOW and FROST programs. These data are updated monthly from their sentinel sites. Using the dashboards, viewers can see the sentinel site locations, indicators such as drug seizures, poison control, wastewater and overdose data, substances, and time periods. These data are also disseminated through NDEWS *Weekly Briefings*, peer-reviewed publications, and HotSpot alerts. *Weekly Briefings* is the newsletter provided through NDEWS. This newsletter provides information relating to relevant news, articles, and data regarding drug trends in the United States and globally. Peer-reviewed publications are written by experts from NDEWS sentinel sites, including directors and collaborators, relating to their findings. This ensures NDEWS publications are the highest quality possible. NDEWS publications can be found on their website under the Publications tab.

The NDEWS HotSpot Alerts is another publicly available data system. The system provides information on any deviations in data that were found outside of the expected range over 84 days. The data are provided through the Biospatial Inc. website, which compiles Emergency Medical Services (EMS) data through artificial intelligence. The alerts are updated bi-weekly on their website, and previous reports can be viewed. Recently, NDEWS has expanded their partnership with Biospatial Inc., and they will now be able to look more closely at trends and specific substances.

Limitations

- Sentinel sites are not located in every state, and EMS data are not provided from each state for the NDEWS HotSpot Alerts.

Contact information

Email: ndews-cc@ufl.edu

Florida Drug-Related Outcomes Surveillance and Tracking System

FROST is one of the tools available through NDEWS. This tool provides data taken from Florida, including Prescription Drug Monitoring Program data, national drug-related data and statistics, drug arrest data, and information on drugs identified in deceased persons from the CDC WONDER database. The program is intended and available for researchers, public health professionals, and the general public.

Resources

The program has numerous features that display the data. The Summary of Drug Trends displays all drugs found in deceased people and whether a particular drug was a cause of death or only present. Drug Trends shows a bar graph of drug-caused deaths per 100,000 people over time for a selection of drugs. The County Map displays each county from which data were collected and shows specific drug occurrences in decedents per 100,000 population by year. Manner of Death displays drugs present in the system of a person and whether the death was ruled to be an accident, homicide, natural, suicide, or undetermined. Deaths by Drug Class shows the data based on groupings of counties in Florida. The Fentanyl Analogs Trends displays drug deaths per year with fentanyl analogs present. Co-Occurring Substances shows what other drugs were found to be present with a selected drug. Lastly, the Drug Rankings tab displays the rankings of drugs that caused death. Users can download the visualizations as PDFs directly from the website and request the data underlying the visualizations by contacting Dr. Bruce Goldberger.

Limitations

- The data are exclusively from Florida and only show data collected from deaths.
- There is a time lag between date of death and toxicology data being included in the dataset. In Q4 2023, the most recent data available were from Q2 2022.

State and National Overdose Web

SNOW is another interactive dashboard displayed by NDEWS. It shows information that comes from NDEWS sentinel sites related to drug-related outcomes. Data are publicly available and may only be used for informational purposes. There are four different pages within the dashboard: State Dashboard and Overdose Resources; Researched Abuse, Diversion and Addiction-Related Surveillance (RADARS) Map; HIDTA Map; and Fentanyl Analysis.

Resources

The four pages on SNOW display raw data collected from various sources. The State Dashboard and Overdose Resources displays a map of the United States with each state being clickable. Clicking a state reveals a link to the data dashboard. The RADARS map shows data that relate to fentanyl, opioid, and stimulant poison control data. Users can select each state to view state-specific data, and there are options to filter the data based on period (by quarter) and nine different indicators such as all fentanyl related, fentanyl misuse or abuse, and fentanyl suicide attempt. The HIDTA map shows metrics for drug seizures in every state. Filters for the drug type (cocaine, fentanyl, heroin, and methamphetamine) and quarter can be changed. The Fentanyl Analysis page shows both a map and a line graph of fentanyl data from wastewater samples collected in Gainesville, Detroit, and Chicago. Individual line graphs for the cities can be viewed by hovering over the city on the map, and a graph of all the data can be seen below the map.

Limitations

- There is a time lag with the data. Information is updated at least a year after collection.
- Several of the resources include only broad drug categories or a limited selection of specific drugs.

FROST Contact information

Email: bruce-goldberger@ufl.edu

SNOW Contact information

Email: aiyer1217@ufl.edu

National Institutes of Health

The NIH mission is "to seek fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life, and reduce illness and disability." NIH funds research projects that include basic, translational, and clinical research. All of their projects relate to their mission of helping to lengthen and enhance life. One of their programs includes the Helping to End Addiction Long-term (HEAL) data platform. This platform has the goal of researching the national opioid health crisis.

HEAL Data Platform

The HEAL Data Platform is an interface to discover and access data generated by HEAL-funded and HEAL-relevant studies. HEAL studies relate to the opioid health crisis and treating pain. The platform is continuously updating and changing to give users as up-to-date information as possible. It does not store data but provides users with secure access to datasets.

Resources

The HEAL Data Platform contains a search and discovery interface that allows users to search for relevant datasets using metadata. These can be viewed publicly on their website, and anyone can search through more than a thousand submissions. The search can be filtered to find the desired study. An additional way to search is through the HEAL Semantic Search. Results from a single search incorporate the entered search terms, any synonyms from the searched words, and related results. This allows users to find a result that they may have not thought to look up and gives them a better resource for access to new information. Along with searching through studies, users can look through tutorials and analyze examples of presented data, which can be altered to fit personal findings. There are also tutorial videos to help users interact with the platform.

Limitations

- Data are limited to what users submit individually.

Contact information

Email: HEALquestion@od.nih.gov

INTERNATIONAL RESOURCES

European Monitoring Centre for Drugs and Drug Addiction

The European Monitoring Centre for Drugs and Drug Addiction's (EMCDDA's) mission is to support the "EU and national policymaking by providing evidence-based information on drugs, drug addiction and their consequences." The EMCDDA conducts objective, independent research to ensure that the European Union (EU) is best prepared to handle threats. Funding for this organization comes from the EU, with independent funds from Turkey and Norway. They have many publicly available resources on their website, and a list of all their current work can be found under the Activities page on their website. Their resources include publications and a statistical bulletin, as discussed below.

Resources

All data are publicly available on the EMCDDA website. All national data are presented in similar formats: There is a paragraph explaining the data, which is then followed by data tables and graphics. The city-level data are presented differently for each subsection. Drug checking, hospital emergencies, and syringe residues have the same format as the national data. The wastewater analysis is a longer page that contains an interactive map and additional subsections. All data at both the national and city levels can be viewed on the page and downloaded in Excel.

Publications

EMCDDA helps create many types of publications throughout the year. These publications are aimed at different audiences to inform as many groups as possible, and four are featured on their website: the European Drug Report, European Responses Guide, EU Drug Markets, and drug profiles.

The European Drug Report shows the current trends and development for each year. It has subsections that highlight different aspects of the data focusing on illicit drug use, related harms, and drug supply. It also breaks down the data found from various classes of drugs and has a section for reducing drug harm.

The European Responses Guide was created for practitioners and policymakers to help them draft effective responses for public health challenges. It is organized into four miniguides: patterns of use, people with vulnerability, settings, and harms. These miniguides are framed by two resources, an action framework and strategies for successful implementation.

EU Drug Markets is a publication that analyzes information on Europe's illicit drug market. It looks at the major aspects of the market, including production, trafficking, distribution, and use. This publication is disseminated by both EMCDDA and Europol, which is an agency that also works closely with the European Union. EU Drug Markets is formatted as modules, with each module focused on one drug's market. Modules are continuously added and updated to provide the most up-to-date information possible.

Drug profiles, the last featured type of publication, briefly describe major drugs of abuse. The profiles have sections describing the chemistry, pharmacology, synthesis and precursors of each substance, analysis, physical form, and modes of use. Some profiles also contain the prevalence, street price, levels of purity typically found, possible medical uses, control status, street names, and images. These publications also include a bibliography and a glossary of the technical terms used in the profiles to provide clarity.

Statistical Bulletin

In addition to publications, EMCDDA offers access to the individual datasets that form the foundation for the analysis in the agency's work. Most data may be viewed interactively on the EMCDDA website and downloaded in Excel format. The statistical bulletin is an annual report of data collected by EMCDDA and other partners. It is split between national- and city-level data, and there is also a section on the methods and definitions used to analyze the data. National data include prevalence of drug use, drug-induced deaths, infectious diseases, problem drug use, treatment demand, seizures of drugs, price purity and potency, drug use and prison, drug law offenses, and health and social response. These data are submitted by Reitox national focal points. Reitox is "the European information network on drugs and drug addiction" and was created at the same time as EMCDDA. National focal points are designated national institutions or agencies that report on the drugs and drug addiction. The focal points include 27 EU Member States and Norway, Turkey, and the European Commission. City-level data include drug checking (collected by the Trans European Drugs Information network), hospital emergencies (Euro-DEN Plus), syringe residues (European Syringe Collection and Analysis Project Enterprise), and wastewater analysis (Sewage analysis CORe group). Previous statistical bulletins are available to be viewed on the website as well.

Limitations

- Collected data are only from members of the EU, Norway, Turkey, and the European Commission.

Contact information

Email: info@emcdda.europa.eu

United Nations Office on Drugs and Crime

The United Nations Office on Drugs and Crime (UNODC) mission is "to contribute to global peace and security, human rights and development by making the world safer from drugs, crime, corruption and terrorism." Their subject areas include the world drug problem, organized crime, corruption and economic crime, terrorism, and crime prevention and criminal justice. They work worldwide and assist member states with confronting these issues and encourage transnational approaches.

Early Warning Advisory on New Psychoactive Substances

The Early Warning Advisory (EWA) program focuses on reporting trends in NPS. It is administered by the UNODC Global Synthetics Monitoring: Analyses, Reporting and Trends program and works to report findings about illicit synthetic drugs, operating globally to share information. It also works to store information on these substances and to help understand how NPS are used and distributed. Data are received through a variety of sources, which can be viewed on their website.

Resources

The EWA website includes an interactive NPS data visualization that details historical trends, distribution of NPS reported by effect group, scheduling dates, and more. General information on NPS is available to the public, but specific information, including laboratory analyses, is only available to registered users through the NPS portal. Registered users must come from forensic drug laboratories, law enforcement authorities, and policymakers/organizations. There is also a Tox-Portal, which is used to collect, analyze, and share data on toxicology and harm related to NPS globally. In addition to data, the EWA includes a listing of NPS substance groups with background information and reported adverse effects for each group, complete with references.

Limitations

- Users must create an account and register to view all information.
- Some of the NPS substance groups have no information available.
- Data are not specific to the United States.

Contact information

Email: unodc-globalsmart@un.org

Summary

This report provides an overview of several initiatives for surveilling drugs in various settings. Moving forward, the goal is to develop and maintain a dynamic webpage to include information from this report and others recommended by the community. If you have suggestions for other surveillance systems, please contact the FTCOE at ForensicCOE@rti.org.

Forensic Technology
CENTER OF EXCELLENCE

A program of the National Institute of Justice

NIJ.GOV | National Institute of Justice
STRENGTHEN SCIENCE. ADVANCE JUSTICE.

RTI INTERNATIONAL

Published: **December 2023**

Disclaimer

The NIJ FTCOE, led by RTI International, is supported through a Cooperative Agreement from the NIJ (15PNIJ-21-GK-02192-MUMU), Office of Justice Programs, U.S. Department of Justice. Neither the U.S. Department of Justice nor any of its components are responsible for, or necessarily endorse, this in-brief. NIJ is the research development, and evaluation agency of the U.S. Department of Justice. NIJ is dedicated to improving knowledge and understanding of crime and justice issues through science. NIJ provides objective and independent knowledge and tools to inform the decision-making of the criminal and juvenile justice communities to reduce crime and advance justice, particularly at the state and local levels. The NIJ Office of Investigative and Forensic Sciences (OIFS) is the federal government's lead agency for forensic science research and development. OIFS's mission is to improve the quality and practice of forensic science through innovative solutions that support research and development, testing and evaluation, technology, information exchange, and the development of training resources for the criminal justice community.

Public Domain Notice

Suggested Citation

Forensic Technology Center of Excellence. *Drug Surveillance Initiatives: An FTCOE Repository of Resources* (2023, December). Research Triangle Park, NC: RTI International. https://forensiccoe.org/report-2023-drug-surveillance-guide/

FTCOE Contact
Jeri Ropero-Miller, PhD, F-ABFT
Principal Scientist, FTCOE
jerimiller@rti.org

NIJ Contact
Danielle McLeod-Henning, MFS
Physical Scientist
Office of Investigative and Forensic Sciences
danielle.mcleod-henning@usdoj.gov

Technical Contact
Katherine Bollinger, M.S., D-ABFT-FT
Research Forensic Scientist
RTI International
kbollinger@rti.org

Photo Credit:

Page 1— https://www.gettyimages.com/detail/photo/police-scientist-examines-seizures-of-adulterated-royalty-free-image/1749821572

Page 1—https://www.gettyimages.com/detail/photo/pipetting-droplets-of-liquid-into-multiwell-dish-royalty-free-image/599836317

Page 3—https://www.gettyimages.com/detail/photo/heroin-packs-royalty-free-image/1359863108