I-91 Drug Supply Project: Expansion of the Massachusetts Drug Supply DataStream (MADDS)

Brandeis University

New England High Intensity Drug Trafficking Area (NEHIDTA)

Overdose Response Strategy (ORS)

COMMUNITY DRUG CHECKING

EXECUTIVE SUMMARY

The drug supply is toxic, unregulated and frequently changing. Surveillance and monitoring of drug seizures and overdose events have limited utility because they represent a small and biased fraction of the drug supply. Waiting for arrest, harm, or serious injury to detect drug presence and gather information about drug risk are reactive not proactive approaches and introduce collateral harm at the expense of information-gathering. Stigma and concerns about poor treatment response like precipitated withdrawal, warrants, or arrest contribute to reduced help-seeking and fewer 911 calls, rendering emergency response data less informative sources for drug supply clues. An alternative approach to understand drug supply trends equips community partners with devices for drug component detection, called community drug checking. These data, provided as objective reports of drug content, inform consumers so they may alter use, suppliers so they may change supplies, and communities so they may refine responses. Based on the success of a state-wide drug checking program in Massachusetts launched in 2019, the New England HIDTA partnered with Brandeis University to support an expansion of their training, technical assistance, and programming to communities along the active I-91 drug trafficking corridor connecting Vermont, Massachusetts and Connecticut.

Started in the middle of the COVID-19 pandemic, the I-91 Drug Supply (I-91DS) Project swiftly identified partners and secured permissions in all three states with authorities to permit the project's activities. We launched a mail-based testing program with a partner lab until the COVID-19 supply constraints lifted, then trained 25 individuals across the community programs on drug checking with spectrometers, analysis, and results communication.

Programs in Bridgeport, New Haven, and Hartford Connecticut; Holyoke and Greenfield, Massachusetts; and Brattleboro and Bennington, Vermont took part in the I-91DS Project. The harm reduction program and medical treatment sites, both urban and rural, employed stationary and mobile service delivery to clients, and fit drug checking into their usual workflow and activities. Unlike the MADDS program, no law enforcement departments took part in the I-91DS Project contributing samples for testing, though clear support and appreciation for the project was extended to the program.

By the end of the project, over 1,000 community drug samples had been tested in-field and all sites were functional and staffed. We identified xylazine as a rising concern and could alert Vermont and Massachusetts health officials and communities of this shift early on. The project identified a novel psychoactive substance and worked to catalogue it with our lab partners at CFSRE as part of the NPS Discovery. Identifications of protonitazene allowed triangulation of information on this novel substance, to quell concerns. Identifying alerts are as import as dispelling them.

The state of Vermont passed legislation authorizing community drug checking and extended opioid settlement funds to drug checking capacity building. Connecticut Department of Public Health and the City of Hartford committed to supporting the sites and also received CDC funding to do so. Massachusetts continues to support MADDS programming and is considering legislation legalizing drug checking statewide.

As proof of concept, the I-91DS Project exhibited feasibility, acceptability, and exceptional return on investment. There are pathways for nurturing investments in community drug checking. For sustainability and credibility, this is best led by community partners and done with law enforcement's support rather than their lead.

INTRODUCTION

The "I-91 Drug Supply (I-91DS)" Project was created as an exploratory expansion of the Massachusetts Drug Supply Data Stream (MADDS) in order to address and respond to the rapidly-changing opioid crisis in the New England region. A state-funded collaborative between Brandeis University and the Massachusetts Department of Public Health, MADDS was piloted in 2019, beginning with two community partner sites, which has continuously grown and expanded into other high-need communities in Massachusetts. The I-91DS expansion project, a collaboration with the New England High Intensity Drug Trafficking Area (NEHIDTA), Overdose Response Strategy Teams from three states (ORS), and Brandeis University, was supported through a successful application for HIDTA discretionary funding from the Office of National Drug Control Policy (ONDCP). Together, these entities worked with treatment and community program sites located in areas along a key drug trafficking route: Interstate 91 in New England. The Interstate 91 highway runs from the Canada-United States border in Derby Line, Vermont, passing through Western Massachusetts and ending in New Haven, Connecticut.

Efforts have been underway to conduct surveillance of the drug supply in Massachusetts for the past several years. The results have allowed officials and the public to reduce the toll of illicit drug use by identifying emerging harmful substances and combinations, tracking evolving risks, and educating communities about them. Recognizing that Massachusetts is an integral part of Vermont's and Connecticut's drug supply pipeline, the Brandeis University researchers who support operations for MADDS partnered with Vermont and Connecticut stakeholders to expand drug checking capacity in their respective state.

The collaborative approach between public health and public safety agencies and communities served, utilized individual areas of expertise and resource sharing in order to improve current public health surveillance with an emphasis on consumer safety. The concept is efficient: by opting to take part in drug supply monitoring, law enforcement agencies can turn their routine drug-related incidents into a critical source of public health intelligence. Operating further upstream than traditional sources of drug supply intelligence, the I-91 DS Project aimed to support communities by increasing knowledge of the drug supply and creating opportunities to identify emerging trends. The project partnered with the Overdose Response Strategy (ORS), a distinct collaboration between the Centers for Disease Control (CDC) and HIDTA to enhance public health and public safety partnerships, one Public Health Analyst (PHA) and one Drug Intelligence Officer (DIO) from each of the three respective states to push forth the ORS mission to help communities reduce fatal and non-fatal drug overdoses through sharing information, promoting evidence-based interventions, and connecting public health and public safety.

WHY DO DRUG CHECKING?

Improves safety of the drug supply (Evidence: European, darknet studies)	• Decreases violence in drug transactions • Improves consumer knowledge and confidence • Fewer unsafe adulterants/cuts • Stabilizes market
Provides an opportunity for empowerment, health promotion, consumer behavior change (Evidence: FORECAST, Fentanyl Test Strip studies)	• Promotes health and dignity of people who use drugs with knowledge and interaction with harm reduction staff, people change behaviors
Engagement tool for new, hard to reach populations (Evidence: RIZE MA evaluation, Peiper et al.)	• Increases in program utilization, program contacts when coupling drug checking at outreach with existing medical and harm reduction services

What's in the drug supply?

Street drug supplies are **unregulated** & **unpredictable**

Unknown drug content is a **major determinant** of drug related deaths

Knowing what is in the drug supply informs public responses

Consumer knowledge and safety is a proven harm reduction prevention tactic

How it works: Community Drug Checking Program Overview

As an expansion of MADDS, the I-91DS Project utilized existing drug checking programing which has been in place across Massachusetts for the past several years. The MADDS model has two parts: a public safety and a community partner component. The *public safety component* brings trained technicians into law enforcement premises to test samples of drugs seized or turned in under a variety of circumstances. This allows analysts to detect trends and hazards before they would turn up after an overdose, at a crime scene, or by the state medical examiner. The *community partner component* creates real-time drug checking services that can be provided directly on-site at community centers and mobile outreach units. Both public safety and community partner components rely upon tools validated for field testing: fentanyl and xylazine test strips and Fourier Transform Infrared Spectrometers (FTIR). Using real- time drug checking helps combat overcrowded off-site laboratories and delivers results back more quickly to consumers.

The drug checking equipment used across the community partner sites, such as the FTIR, are all tools that harm reduction and outreach workers can be trained to use without any degree or certificate to operate. The Brandeis MADDS team provided trainings on sample collection and safety, recordkeeping and data, care and set up of the equipment, analysis of the testing results, communication and reporting, and public and partner messaging. All trained I-91DS community partner sites now perform their own drug scanning independently, offer regular drug checking services. Programs not only directly benefit consumers of drugs, but also help identify emerging drug trends, supply threats, and improve community alerts and information sharing.

Samples provided from harm reduction partner site/police department and gather situational and subjective information	Scan sample with FTIR (on-site), test with fentanyl/benzo/xylazine test strips (on-site), send for additional lab testing (off-site) and review by medical toxicologist	Report out findings to partners, submitter, communities and the state

WHAT IS DRUG CHECKING?

The process of drug checking is a powerful tool for consumers of drugs as well as in assisting the tracking of drug supply trends. This real-time service helps communities that are impacted heavily by drug usage by filling in gaps to data provided by law enforcement. Depending on state and local municipality regulations, there are barriers to accessing drug seizure and fatal overdose toxicology data. These barriers make it difficult for communities to stay up to date on emerging trends within the drug supply of a community. By analyzing samples willingly provided by consumers of drugs and from a variety of other sources, community leaders can make more informed decisions on how to best educate and protect their citizens.

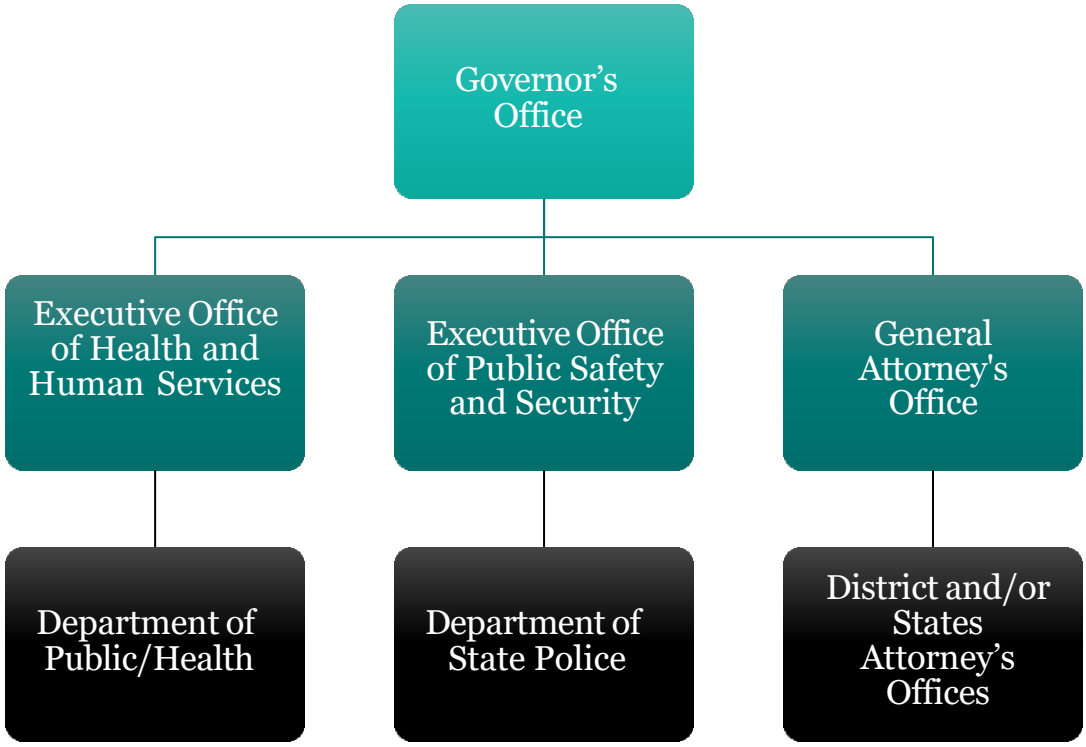
In Massachusetts, in accordance with state laws and criteria, remnant samples from drug use detritus, or "drug trash," such as baggies, used cookers and pipes, can be brought to local harm reduction sites for drug checking submission. Each of the I-91DS states required navigation of permissions, state laws, and regulations in order to operate. Getting to implementation required navigating several barriers; by working with ORS partners who assisted in speeding up the process of obtaining permissions to operate within the three states, we formalized memo-style letters and Memorandums of Understanding (MOUs) to secure the project's implementation.

One theme that emerged from the I-91DS Project was that misconceptions about what drug checking is and what it the process is not, can create roadblocks to service expansion, beyond legal constraints. This was especially true for Vermont and Connecticut, as Massachusetts had a solid drug checking foundation prior to the start of this project. In order to dispel misconceptions and attain support for the project, educating key players involved about the drug checking process was vital. Often, the assumption of drug checking services is that people will bring in large samples and have the product tested and returned, whereas the reality is that the provided sample and materials are very small, with just enough residue to scrape and test. Further, the very nature of drug checking renders the minute sample unusable after being scraped and mixed with water for test strips or other preparations.

How much is needed to test?
In most cases, about the size of half a grain of rice (~5mg of sample)

"We needed to leverage existing relationships while continuing the relationship-building with partners we may not be as familiar with." -Robert Lawler Jr., CT DIO

Working with NEHIDTA was an invaluable asset to garnering public safety support for the I-91DS Project. Amanda Consigli, the Massachusetts PHA described the role she and her DIO partner, Michael Sampson, played on I-91DS Project as that of "liaisons." Drug checking was a newer initiative for many of the community partner sites, so having ORS teams as the main points of contact between Brandeis' MADDS team and public safety partners to obtain needed permissions for the project was vital. NEHIDTA's established relationship with law enforcement brought to the table a DIO who is familiar with law enforcement language and culture, as well as a PHA partner who could be consistent with community priorities. The end result maintained goals of the community partner sites and translated the project's components into language and considerations easily understood by DA offices and police officers. This achieved the project's goals and led to swift implementation.



NEHIDTA worked to bolster relations between the Department of Public/Health, law enforcement agencies, and district or states attorney's offices in order to ensure community partner sites have the support needed to expand drug checking efforts through a top-down approach.

WHAT DID AND DIDN'T HAPPEN WITH PUBLIC SAFETY PARTNERS?

All sites attained permissions to carryout drug checking by the end of the I-91 DS Project. Getting to the point of approval and support did not come without its challenges, and the two- component MADDS model for drug checking was in fact not replicated in any state. Due to state-specific challenges, mainly centered around concerns and uncertainty about permissions and direction from courts, as well as staffing and personnel shortages, no police departments in any of the project sites provided samples for testing or operated as an active site.

While Vermont's PHA, Stephanie Thompson, expressed they had initially received support and buy-in from law enforcement about the I-91DS Project, their existing responsibilities, staffing challenges, and concerns for legislation did not allow for the opportunity to utilize non-prosecution drug trash samples collected by law enforcement. PHA Consigli echoed these sentiments and explained that "flexibility for what we could offer as an agreement [was] helpful," which led to the shift from a more formal Memorandum of Understanding between Brandeis University and our public safety partners to a memo-style letter of support from a law enforcement leader (see below) that clarified the support for drug checking and permission to proceed under the I-91DS Project. DIO Sampson discussed how even perceived support by law enforcement is a powerful tool when aiding in drug checking efforts and that the memo style helped the team gain a "stamp of approval" from police departments.

While samples were not provided by our public safety partners, all of the police departments involved engaged in multiple meetings with the I-91DS team and provided either active and/or written support of the project.

From a Memorandum of Understanding (MOU) to a Memo-style permissions approach: language and form matter!

MEMORANDUM OF UNDERSTANDING
BETWEEN
BRANDEIS UNIVERSITY &
BERKSHIRE DISTRICT ATTORNEY'S OFFICE

The Berkshire District Attorney's Office and Brandeis University, a Massachusetts not for profit corporation with an address of 415 South Street, Waltham, MA enter into this Agreement as of August 5,2020 (the "Effective Date").

WHEREAS, fatal opioid overdoses have risen 450% in Massachusetts since 2000, and understanding the rapidly changing epidemic from the viewpoint of active drug users would add greatly to the understanding of the fentanyl crisis and opportunities for prevention and response;

WHEREAS, the Centers for Disease Control and Prevention ("CDC") is funding and

supporting the continuation of the "Rapid Assessment of Consumer Knowledge Project" (the "RACK" Study);

WHEREAS, Brandeis is participating in a component of the RACK Study by conducting surveillance of packaging detritus (trash) and other donated and discarded materials used by people who use drugs to determine the presence and composition of any remnant substance;

WHEREAS, this approach conducts public health surveillance of the discarded detritus of the opioid epidemic relying upon materials found in public places, abandoned spaces, and otherwise donated or intended for public disposal (i.e, to a transfer station or other disposal facility);

WHEREAS, Brandeis University, led by Traci C. Green, PhD, MSc, is cataloging this detritus as part of the RACK Study;

WHEREAS, Dr. Green and her team (the "Brandeis Research Team") will obtain, catalogue the detritus, test it, and dispose of it as originally intended;

WHEREAS, Berkshire county police departments, as designated and agreed upon, and other community partners in Berkshire obtain detritus that may be useful to the RACK Study and wishes to provide the detritus to Dr. Green and her team of researchers for use in the RACK Study; and

WHEREAS, Brandeis University and the Berkshire District Attorney's Office (the "Parties") wish to memorialize their understanding of how they will work together to support the RACK Study.

NOW, THEREFORE, in consideration of the mutual covenants and agreements hereinafter expressed, the sufficiency and receipt of which is hereby acknowledged, the Parties hereto, intending to be legally bound, agree as follows:

JOSHUA A. GARCIA
Mayor

Holyoke Police Department
138 Appleton Street
Holyoke, Massachusetts 01040-5706

DAVID PRATT
Chief of Police

August 1, 2022

Cheryl Zoll

Tapestry Health Systems, Inc.
1985 Main St. 2nd Floor, Ste. 202
Springfield, MA 0 1103

Dear Ms. Zoll, CF 0149-22

We at the Holyoke Police Department recognize that fatal opioid overdoses have risen 450% in Massachusetts since 2000, and we understand the rapidly changing epidemic from the viewpoint of active drug users would add greatly to the understanding of the fentanyl crisis and opportunities for prevention and response. We also understand that the New England High Intensity Drug Trafficking Area ("NEHIDTA") is funding and supporting the "I-91 Drug Checking Project (191DC)", which is an expansion of the Massachusetts Drug Supply Data stream and related efforts referred to more broadly *as* the Streetcheck Drug Supply Data stream.

We understand and support that Brandeis University Research Staff, Tapestry Health program staff and/or other program staff will be collecting, cataloging, scanning, and sending for confirmatory testing via authorized routes and disposing of remnant drug and packaging detritus at the Tapestry Health site in the City of Holyoke pursuant to appropriate Brandeis University and Drug Enforcement Agency protocols, policies and procedures. We also understand that this project will involve the collection of remnant drug trash (e.g. once used cottons and cookers, residue in wax bags) and that clients will go to Tapestry for the purpose of donating remnant drug trash to participate in the program.

Good luck with the project and we support these efforts for the safety and wellbeing of all in our community.

Please let me know if you have any questions.

DATA AND RESULTS

From June 1, 2022 to December 31, 2023, the community sites collected samples across the I-91DS Project and entered their drug checking data into StreetCheck, a free web-based platform maintained by Brandeis designed to monitor emerging threats to the drug supply. At the project's close, 1,021 samples were collected and tested. The majority of samples were given to community partner sites in paper or wax folds, baggies, pipes, or drug sample without packaging for testing. Common forms were fine powders, rock and chunky powders. Twelve of these samples were procured in informational buys, piloted in Connecticut in collaboration with HIDTA, for the sole purpose of bolstering drug supply data.

Data Snapshot

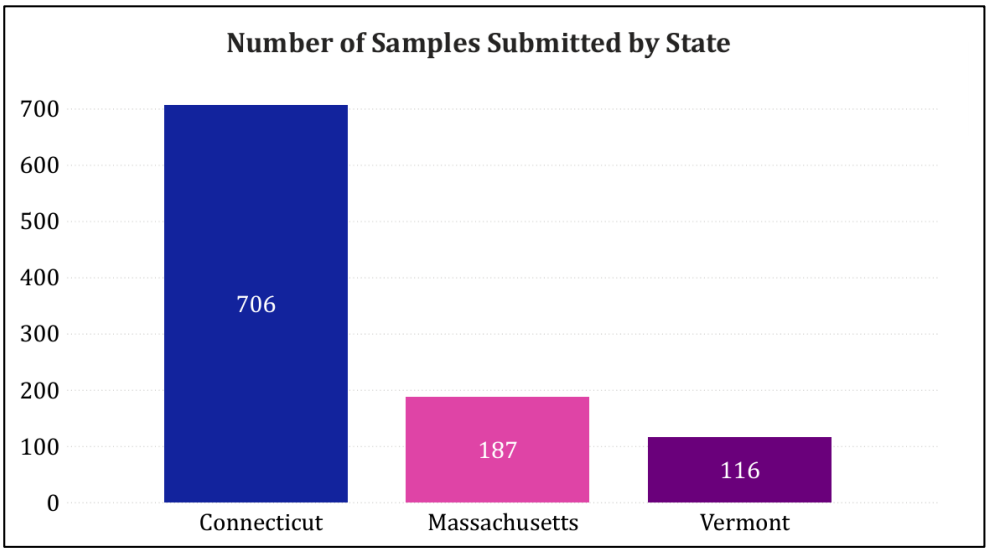
Sample total collected in StreetCheck: 1,021

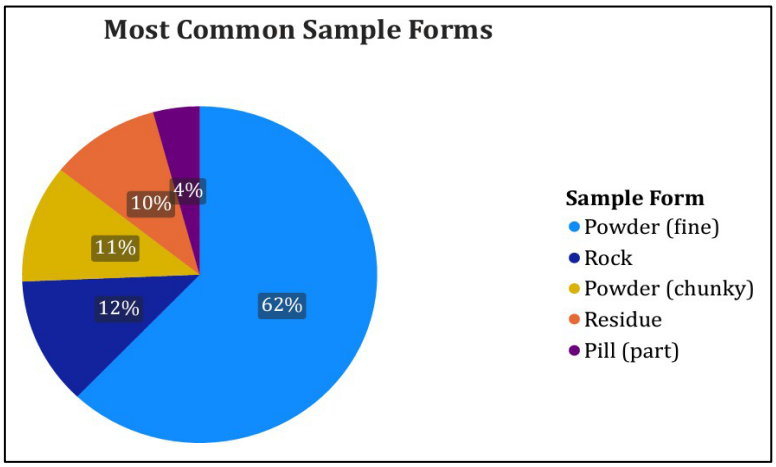
Total confirmatory lab tested samples: 939

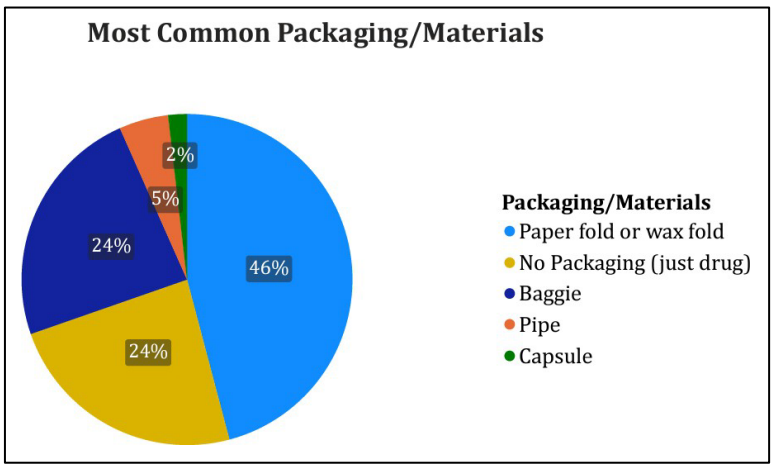
Total samples containing xylazine: 325 (34.6% of total samples and 58.4% of samples with most abundant illicit being an opioid)

Total samples containing nitazenes: 5 (Vermont only and 4.5% of Vermont's total samples)

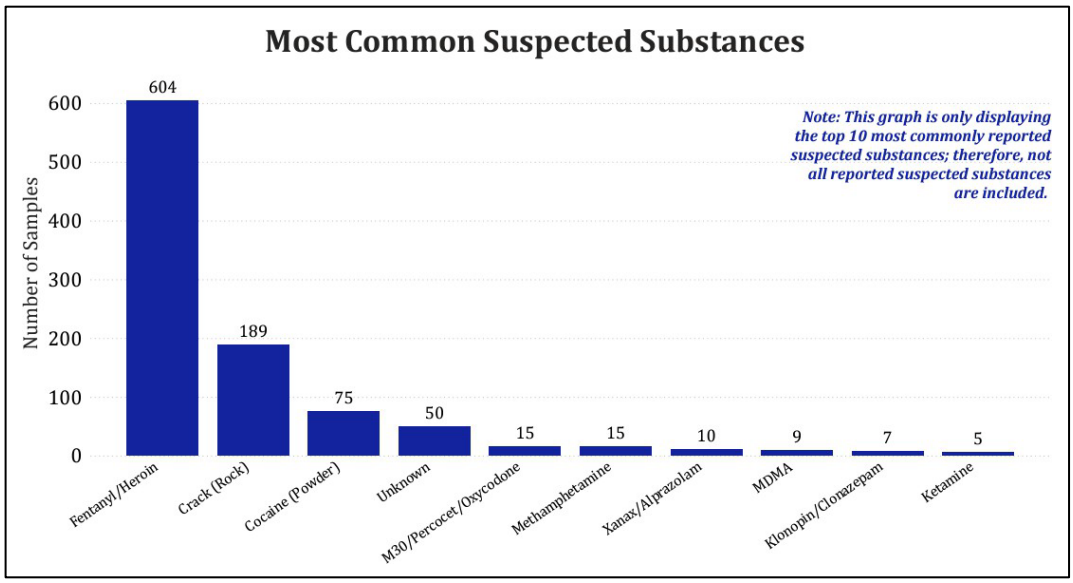
Total Quantified Samples: 257







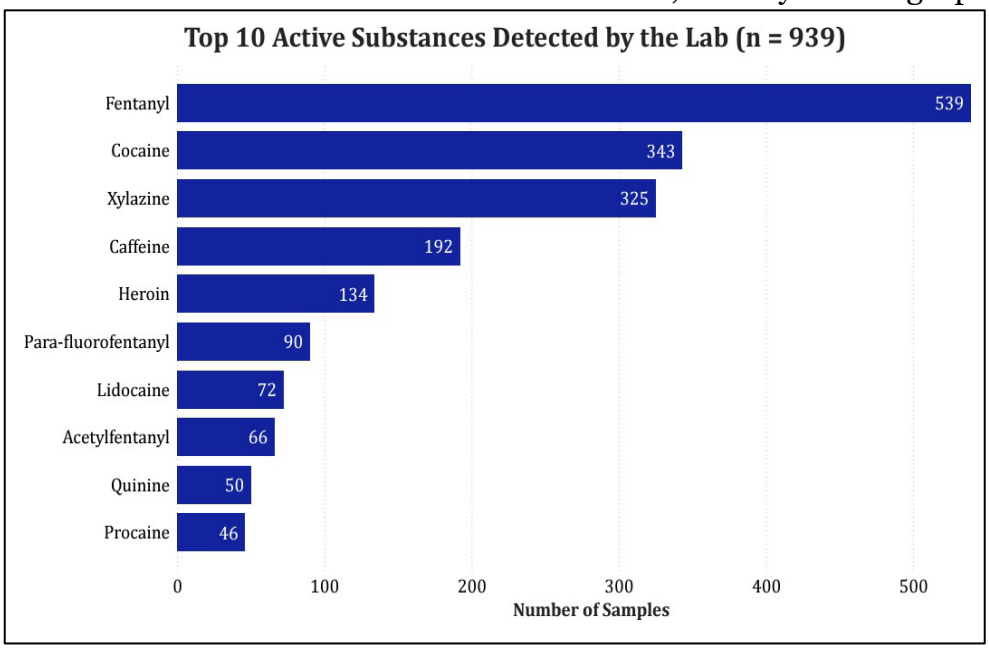
The most common suspected substances submitted for testing were fentanyl and/or heroin, crack rock, and powder cocaine.



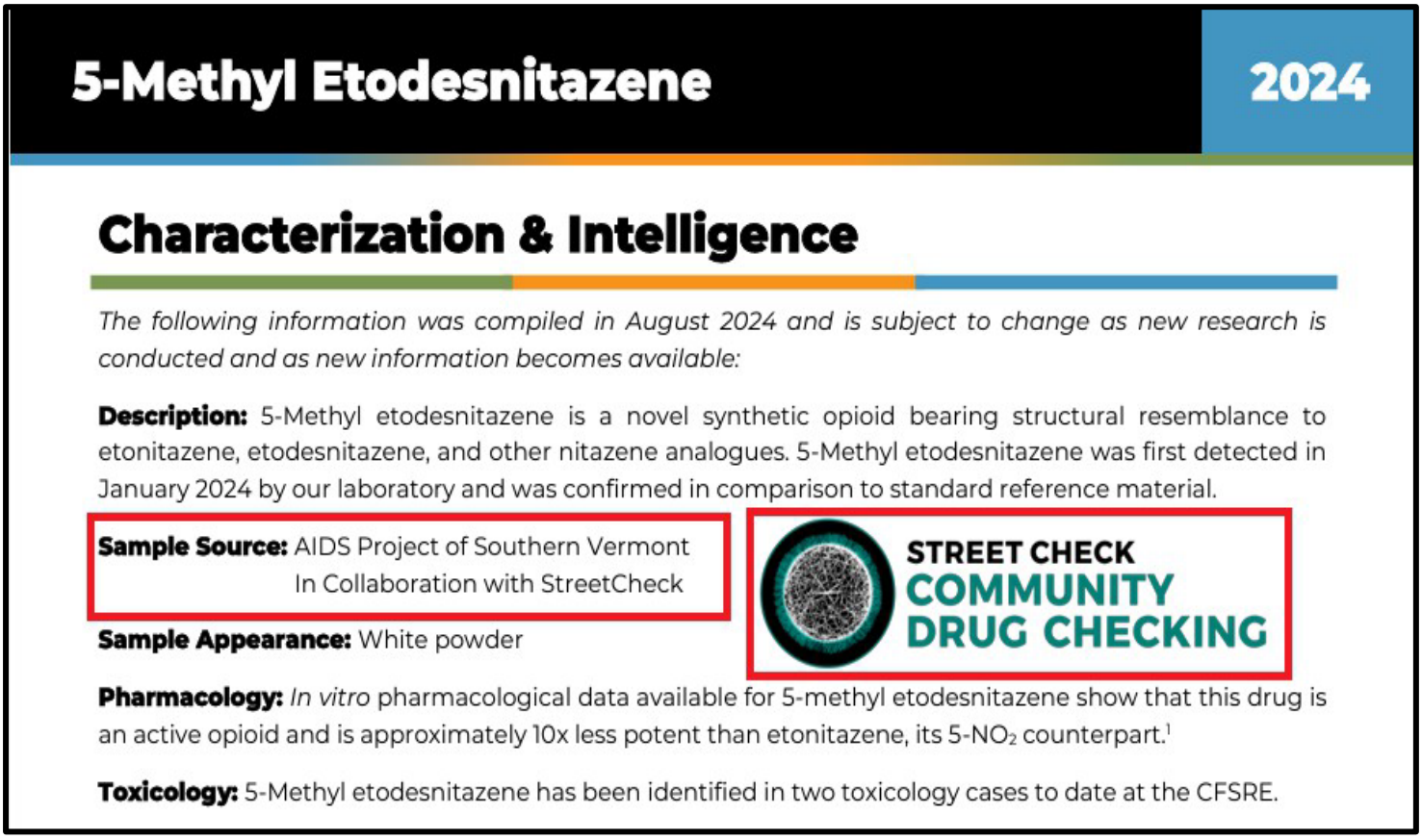
During the course of the project, we noted that, of the 554 opioid samples submitted for testing, xylazine was found in increasing numbers in Vermont and Massachusetts, allowing for early education and alerts for impacted communities about the substance. Xylazine was first detected in October 2022 in Vermont and in December 2022 in Massachusetts, and we have seen an increase from 33.3% to 87.5% in Vermont samples between October 2022 and July 2023, before settling at 42.9% in December 2023.

Connecticut has long experienced xylazine in the drug supply, though we detected varying prevalence across the I-91 DS programs in this project's sites in Bridgeport, New Haven, and Hartford. Sharing these data helped community partners and local and state agencies organize swift responses and deploy specific resources.

Another notable supply trend occurred when some samples in Vermont were found to contain protonitazene, a strong opioid-like substance more potent than fentanyl. The close collaboration between community drug checking partners and the ORS team gave rise to better situational analysis through real-time, on-the-ground reports and lab results. The more accurate reporting created the ability to notify state health and public safety agencies with objective information. In this case, having more information meant that a broad alert was not indicated, thereby avoiding a potential false alarm.



At one of the project sites, AIDS Project of Southern Vermont, a routine drug checking sample uncovered an usual occurrence: a novel psychoactive substance, 5-methyl-etodesnitazene. This "nitazene" had never been seen before, so its emergence led to collaborations with our lab partners, the Center for Forensic Science, Research and Education (CFSRE), who identified and characterized the substance, verified it's never-before detection status, and prepared the technical documentation for it to become part of the NPS Discovery program (See Appendix E: CFSRE 5-Methyl Etodesnitazene Report for full documentation).



5-Methyl Etodesnitazene

2024

Characterization & Intelligence

The following information was compiled in August 2024 and is subject to change as new research is conducted and as new information becomes available:

Description: 5-Methyl etodesnitazene is a novel synthetic opioid bearing structural resemblance to etonitazene, etodesnitazene, and other nitazene analogues. 5-Methyl etodesnitazene was first detected in January 2024 by our laboratory and was confirmed in comparison to standard reference material.

Sample Source: AIDS Project of Southern Vermont
In Collaboration with StreetCheck

STREET CHECK
COMMUNITY
DRUG CHECKING

Sample Appearance: White powder

Pharmacology: *In vitro* pharmacological data available for 5-methyl etodesnitazene show that this drug is an active opioid and is approximately 10x less potent than etonitazene, its 5-NO_2 counterpart.[1]

Toxicology: 5-Methyl etodesnitazene has been identified in two toxicology cases to date at the CFSRE.

The program and technicians are credited in the documentation prepared by CFSRE, marking the first time that a drug checking service has contributed to a novel psychoactive substance detection in the NPS Discovery program.

PROJECT IMPACT

The impact of the I-91DS Project had far-reaching legislative and community-oriented effects. Project collaborators celebrated various successes for the communities in which they serve, born from innovative efforts and partnerships fostered during this project. Some of these successes and impacts include:

- Approved in May of 2023, Vermont passed the Act 22 (No. 22. An act relating to reducing overdoses), which expands access to naloxone as well as legalizes and formally establishes drug checking services statewide.
    - Drug checking sites will receive support through the Opioid Abatement Special Fund for their efforts, including funding for outreach and case management staff, fentanyl test strips, and a wound care telehealth pilot program
- The state of Connecticut continues to receive funding from the CDC Division of Overdose Prevention, which priorities overdose, suicide, and adverse childhood experiences prevention.
    - CDC funding under Overdose Data to Action (OD2A), Overdose Response Strategy, as well as the Yale University Community Innovation Award allowed for the continuance of drug checking work, as well as overdose education in correctional facilities, and community-level interventions
    - In 2023, Hartford received ongoing OD2A funding for five years for lab testing, the creation of a cross-municipality data tracking system, and targeted harm reduction supports through the Connecticut Harm Reduction Alliance
- Through partnership with the I-91DS Project, the Connecticut Public Health Laboratory was able to establish a formal testing protocol with capacity to continue aiding in analysis of collected drug samples
- During the I-91DS Project, informational buys by law enforcement were piloted as another source of drug samples. This replicable process was carried out by law enforcement officers in Connecticut, in which they engaged in the purchase of illicit substances for the purposes of drug supply information.
    - Informational buys were successfully implemented and brought insights into the drug supply from specific geographies (i.e., suburban site) and drug forms less likely seen in community partner programs (i.e., pills).
- Massachusetts House of Representatives voted unanimously to adopt state legislation to formally legalize drug checking and protect the employees working in harm reduction services as well as clients who access them
    - A Senate version of the bill containing protections for drug checking passed as well but differences were not resolved before the session's end. The upcoming interim session may allow for a version of the bill where unanimity can be assured.
- Every community partner site that participated in the I-91DS Project retained their FTIR instruments and continues to offer drug checking services to their clients.

KEY FINDINGS: WHAT DID WE LEARN?

"We've learned it's important to offer drug trash checking services ***before*** someone consumes a substance, as well as ***after*** there is an adverse health event. Testing before use helps people to *make informed decisions about what they are putting in their bodies* and we can use this information to ***reduce risk of overdose***. Testing after use is beneficial for *information purposes and for research purposes related to the drug supply*.

Both are important and have value!" -Community Partner, Massachusetts

Utilizing Collaborative Partners' Expertise and Connections:

- Harm reduction workers are vital frontline resources. Staff not only provide drug checking and social services to individuals, but due to their close community connections, can also provide valuable insights on trends and best practices that they encounter daily in the field. Further, staff can be trained to conduct all aspects of drug checking without a specialized degree or license.

- Partnering with the Overdose Response Strategy allowed for a variety of perspectives to be heard and hurdles to be anticipated and workshopped together. Working with one public health analyst and one drug intelligence officer from each of the three respective states brought the variety of views helpful to advance a project.

- COVID-19 produced new and unique challenges: during this period, fewer autopsies were completed and fewer arrests occurred, which typically provided additional sources of overdose data. HIDTA's ODMAP was particularly helpful to confirm drug checking data and conclude that a more targeted approach in Western Massachusetts was necessary to combat the rise of fentanyl in opioid supplies most effectively.

Bolstering systems in place while adding new technology:

- Sites that already utilized mobile outreach were well suited to integrate drug checking sample collection and educating clients on the process of drug checking, especially in rural areas where harm reduction services are less prevalent. This capacity has great potential to expand utility of drug checking and shed light on the drug supply in hard to reach and rural areas.

- Newly available instruments for drug checking applications may help facilitate work in small clinical spaces and harm reduction sites and can be easily moved into mobile units or onto outreach vans. For partners operating on mobile outreach vans, investments in these machines could be highly beneficial to bringing real-time drug checking to more clients in their communities.

ADDRESSING BARRIERS

"THE BIGGEST BARRIERS OR CHALLENGES WE FACE WITH THIS ARE PROBABLY STIGMA AND FEAR OF PERCEIVED CONSEQUENCE BY THE PERSON GETTING THEIR DRUG TRASH TESTED."
-COMMUNITY PARTNER

Partner Site Considerations:

- Many of the community partner sites involved with the I-91DS Project dealt with high staff turnover, which made communicating project goals and directives more difficult, given points of contact often shifted.

- Community partner staff members also expressed various levels of concern about the legality and comfort of gathering drug detritus, which made the I-91DS focus on public health and public safety partnership all the more important. Securing the highest level of legal and other permissions through MOUs and memos will be important for other communities looking to implement drug checking until state-wide legal support for these services is clarified.

- For clients submitting drug samples, it became especially helpful to have trusted community partner leads onsite and with established rapport. Harm reduction staff members were well-suited to educate clients on the legalities of drug checking by state or local municipality and answering questions and concerns.
- While mailing samples is less preferable to real-time drug checking, this service could be especially helpful for community partner sites in rural regions.

Public Safety Concerns:

- One PHA discussed how they overcame communication challenges with harm reduction sites that did not wish to work with law enforcement. One benefit of having ORS collaboration meant that they were able to have conversations with community partners to quell concerns regarding drug checking data and punitive outcomes. ORS partners were able to explain that the I-91DS Project data is helpful for public safety partners in knowing how to best respond to adverse health events involving illicit substances, especially given shifts in the drug supply.

- COVID-19 produced new and unique challenges: during this period, fewer autopsies were completed and fewer arrests occurred, which typically provided additional sources of overdose data. Some ORS partners utilized HIDTA's Overdose Detection Mapping Application Program (ODMAP) to confirm drug checking data and conclude that a more targeted approach in Western Massachusetts was necessary to combat the rise of fentanyl in opioid supplies most effectively. While tools such as ODMAP may be useful for some agencies, community partner concerns with law enforcement involvement extend to this online platform, making separate and protected datasets, such as what StreetCheck provides, necessary.

WHAT DOES THE FUTURE OF DRUG CHECKING LOOK LIKE?

The future of drug checking is bright, so long as legislature and community partner sites continue to build capacity and support for such efforts. Continuing to foster relationship-building between community partner sites and law enforcement will be vital for consistency and safety across the messaging and procedures of drug checking. One DIO, Michael Sampson, suggests the creation of a public-facing live visual map to help track various drug supply routes, while PHA Thompson agrees that more regular reporting for specific routes, such as the I-91 Corridor would be helpful to tackle the shifts in drug supply.

While ORS partners agree that being able to map out and track drug routes would be helpful in identifying emerging drug threats, this level of publicly-available information is worrisome for community partners, whose main priorities are keeping clients safe and protecting them from any identifiable information that such mapping could expose. Partnership and creating opportunities for open dialogue between community partners, public health and public safety officers are key to continuing to address the opioid crisis and expanding drug checking services.

One area that both ORS partners as well as Dakota Roberts, a drug checking technician from Vermont, seem to agree upon, is the usefulness of regular reporting on drug packaging stamps. For people using drugs, being able to identify between various stamps can be helpful in preventing overdose and staying safe, especially in communities that are seeing an increase of substance of concern, like xylazine, within the opioid supply.

Drug checking technician Roberts also hopes that community drug checking can continue to be more accessible and extend to reach groups at increased risk, such as younger people and those that use drugs infrequently or recreationally. For Roberts, the future of drug checking is faster, less stigmatized, easier to interpret, and expansive in its reach.

CONCLUSION

Through the collaborative and consistent efforts of Brandeis MADDS team, the Overdose Response Strategy of New England HIDTA, and community partner sites, the I-91DS Project proved to be an adept pathway for identifying trends and emerging supply threats along an established drug trafficking corridor while providing much needed information to people who use drugs so they could stay safe from an unregulated and increasingly toxic drug supply. Community drug checking offers an alternative approach by empowering local partners with tools for real-time drug content analysis. This method provides actionable data that informs consumers, suppliers, and communities, helping them to make informed decisions and refine responses to drug risks. Clearly, with over 1000 samples tested in just the course of this short project, the demand for this knowledge is great.

In order to continue expanding community drug checking efforts, legal authorization and clear supports are necessary. Collaboration and open dialogue between community sites and public safety should be nurtured and on-going. Given their local expertise, community partner-led efforts are vital to the sustainability of drug checking; having established and trusted relationships between harm reduction workers and clients allows for growth and education opportunities as shifts occur in the drug supply.

Using innovative approaches to traditional sources of drug supply intelligence, the I-91DS Project proved a valuable aid for educating communities by increasing knowledge of the drug supply and creating opportunities to reduce risk before overdose fatalities occur. The I-91DS Project, ambitiously launched during the COVID-19 pandemic, successfully implemented a multi-state community drug checking program. By the end of the project, over 1,000 samples were tested, revealing emerging threats like xylazine and protonitazene. The project's success led to legislative and financial support in Vermont, Connecticut, and Massachusetts, establishing drug checking as a vital tool in harm reduction efforts. The I-91DS Project demonstrated the feasibility and impact of community-led drug checking, while lifting up and highlighting the importance of community leadership with law enforcement support for long-term sustainability.

ACKNOWLEDGEMENTS

Many thanks to all who contributed to the success of the I-91DS Project. From Vermont, we would like to thank DIO James Downes and PHA Stephanie Thompson, AIDS Project of Southern Vermont), and the Windham and Bennington Counties. From Massachusetts, we would like to thank DIO Michael Sampson and PHA Amanda Consigli, Tapestry Health, and the communities of Holyoke and Greenfield. From Connecticut, we would like to thank DIO Bobby Lawler and PHA Anna Gasinski, Connecticut Harm Reduction Alliance, Yale Syringe Service Program, Liberation Programs, as well as the communities of Hartford, New Haven, and Bridgeport. The MADDS Team from Brandeis University, headed by Dr. Traci Green, New England HIDTA, and all technical and support staff involved in this project are greatly appreciated and vital to this project's impacts and successes!

tapestry

AIDS Project of Southern Vermont

Yale Community Health Care
Van & Syringe Service Program

Liberation Recovery for Life Programs

CTHRA
Connecticut Harm Reduction Alliance

Overdose Response Strategy
ORS
Public Health/Public Safety Partnership
HIDTA • CDC Foundation

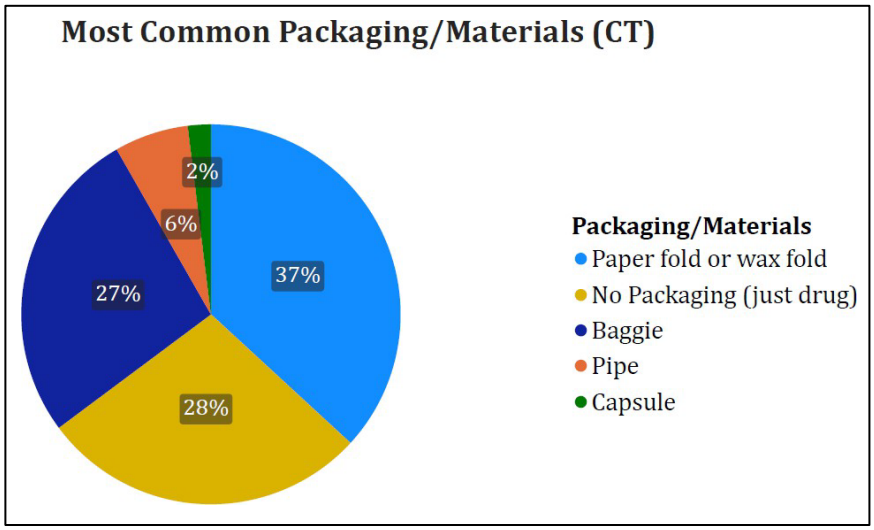
APPENDICES

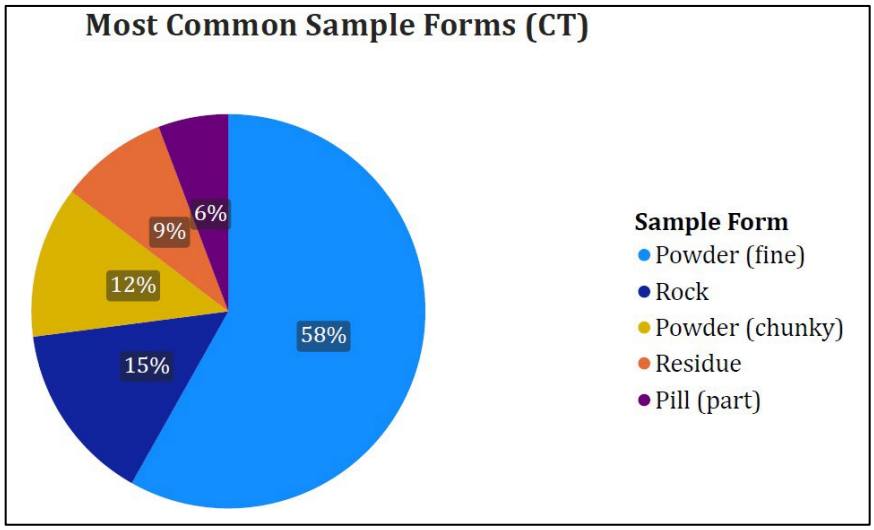
The following appendices are organized alphabetically by state, followed by figures on informational buys and additional overall project data figures. Each appendix includes figures on the most common packaging/material, most common sample forms, and most common suspected samples by state.

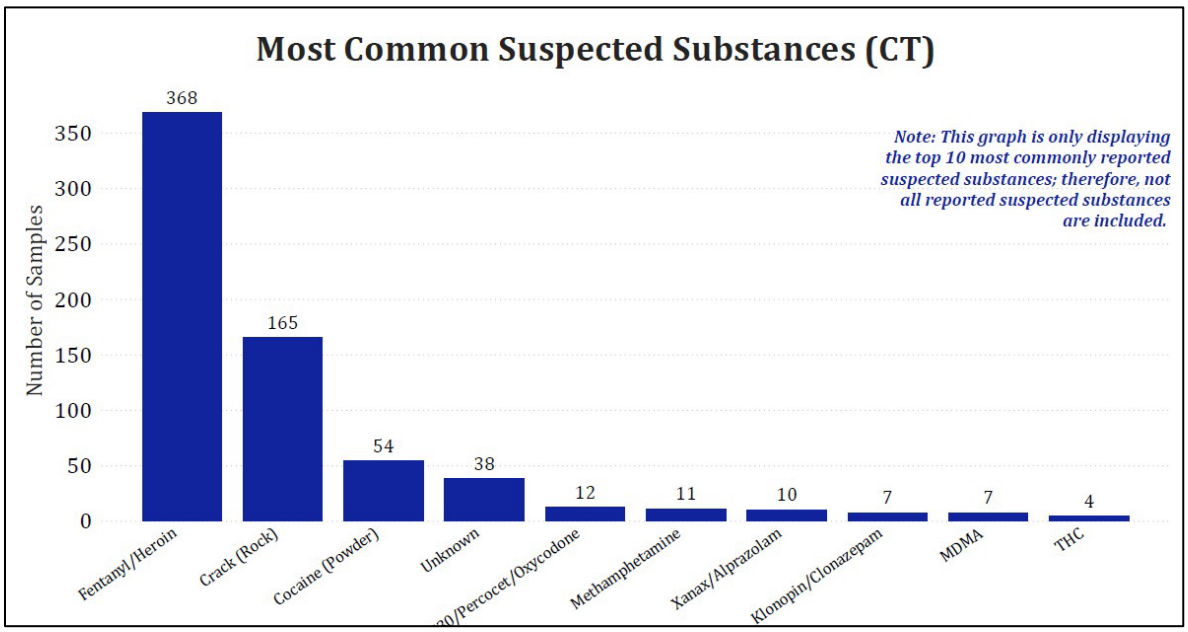
A	CONNECTICUT RELATED FIGURES
B	MASSACHUSETTS RELATED FIGURES
C	VERMONT RELATED FIGURES
D	INFORMATIONAL BUY FIGURES
E	CFSRE REPORT ON 5-METHYL ETODESNITAZENE

APPENDIX A: Connecticut Related Figures

The following figures visualize by state, the most common packaging materials and sample forms of I-91DS Project-related drug samples, submitted to community partner sites, as well as the most common suspected substances.

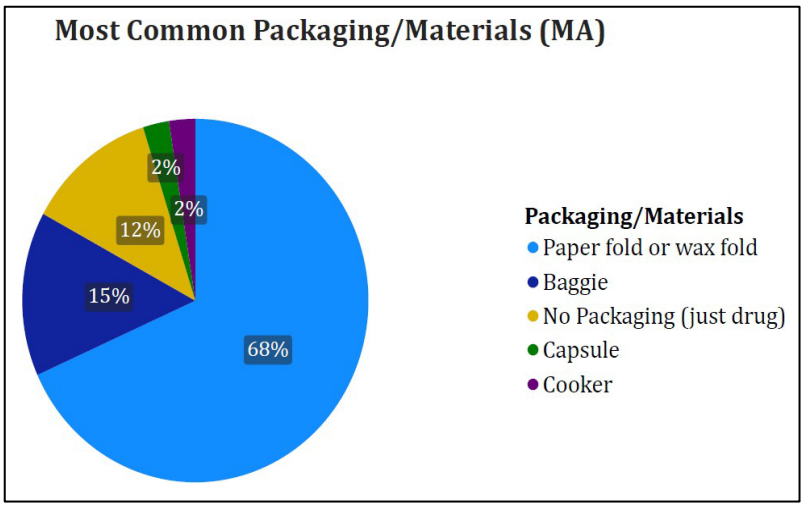


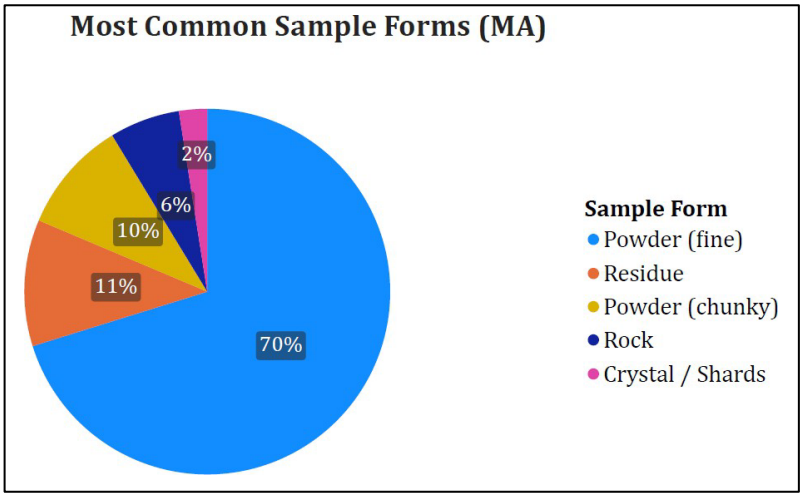


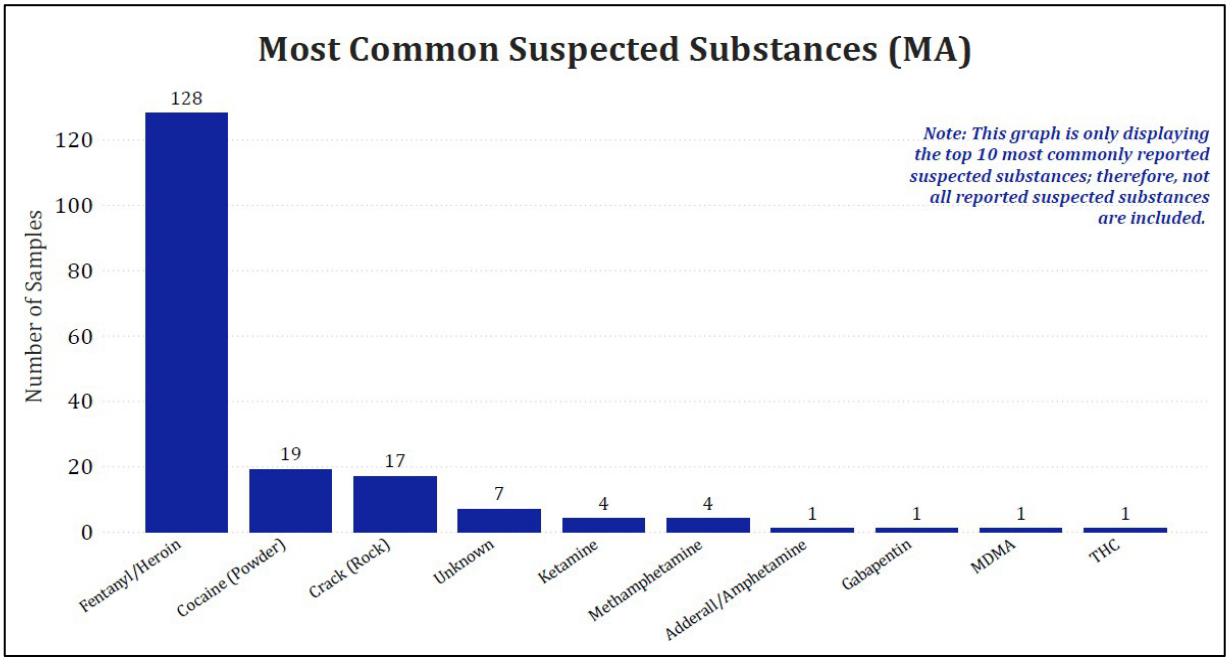


APPENDIX B: Massachusetts Related Figures

The following figures visualize by state, the most common packaging materials and sample forms of I-91DS Project-related drug samples, submitted to community partner sites, as well as the most common suspected substances.

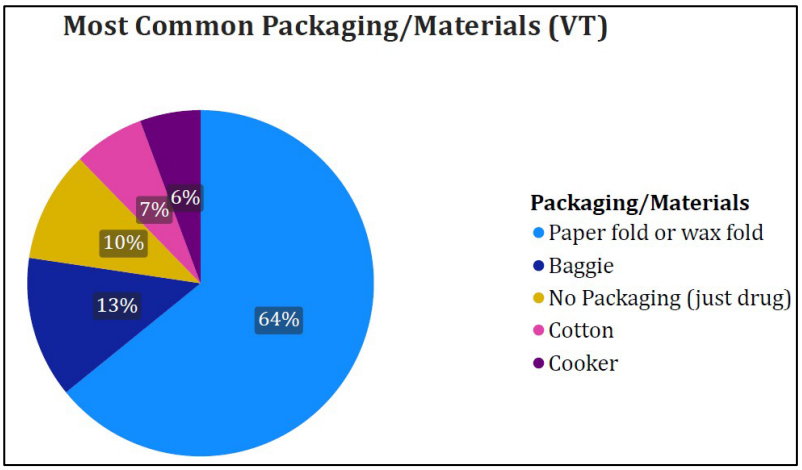


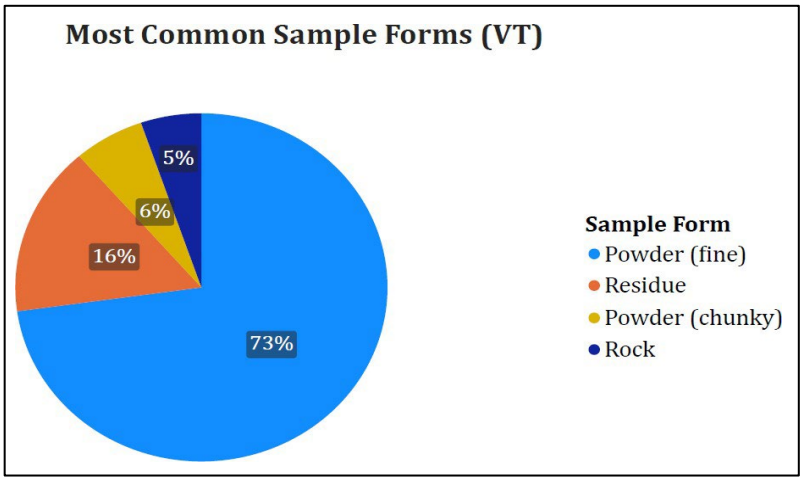


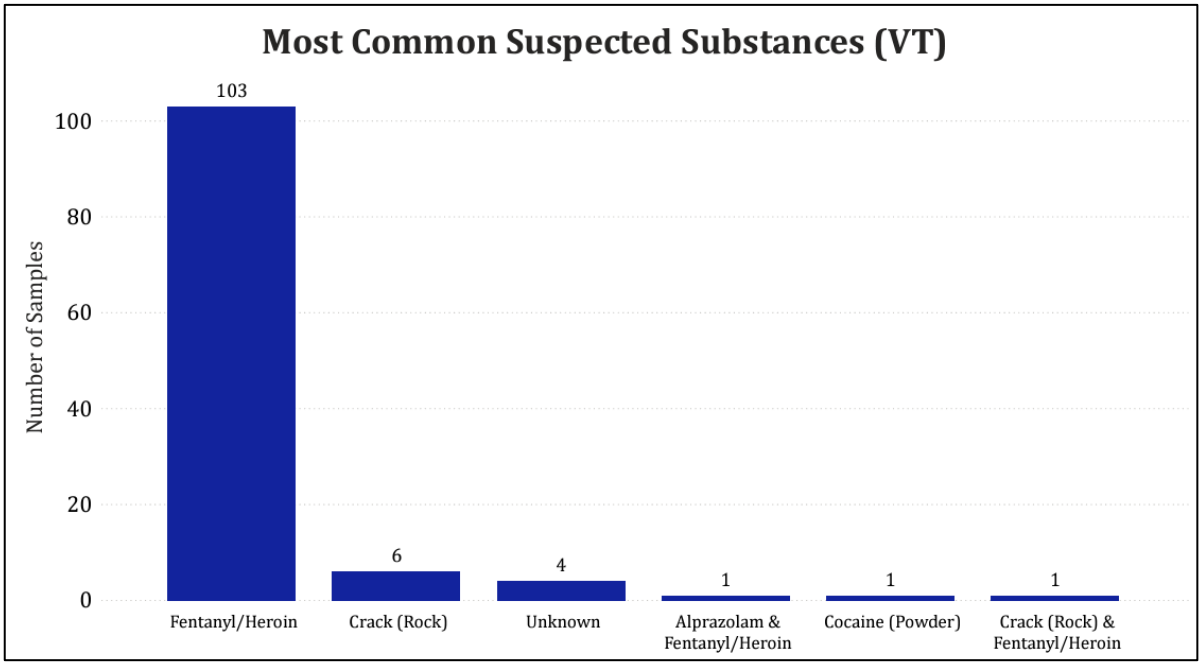


APPENDIX C: Vermont Related Figures

The following figures visualize by state, the most common packaging materials and sample forms of I-91DS Project-related drug samples, submitted to community partner sites, as well as the most common suspected substances.

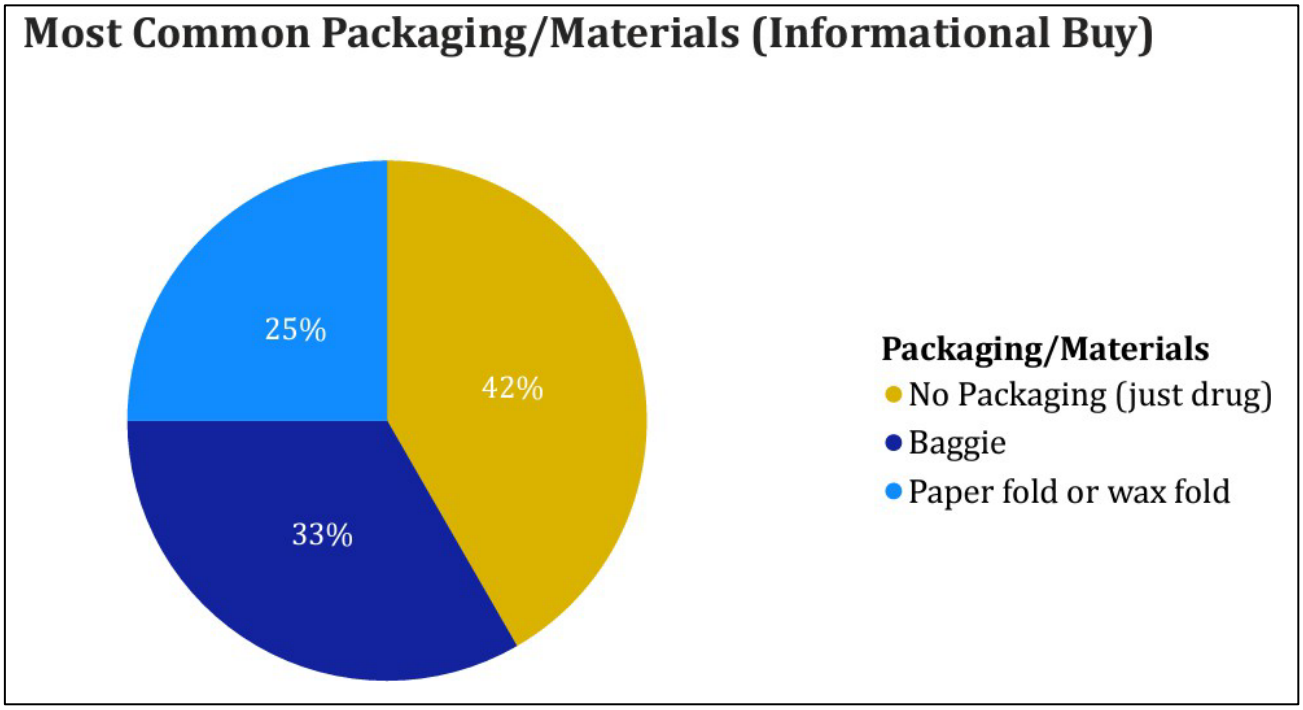


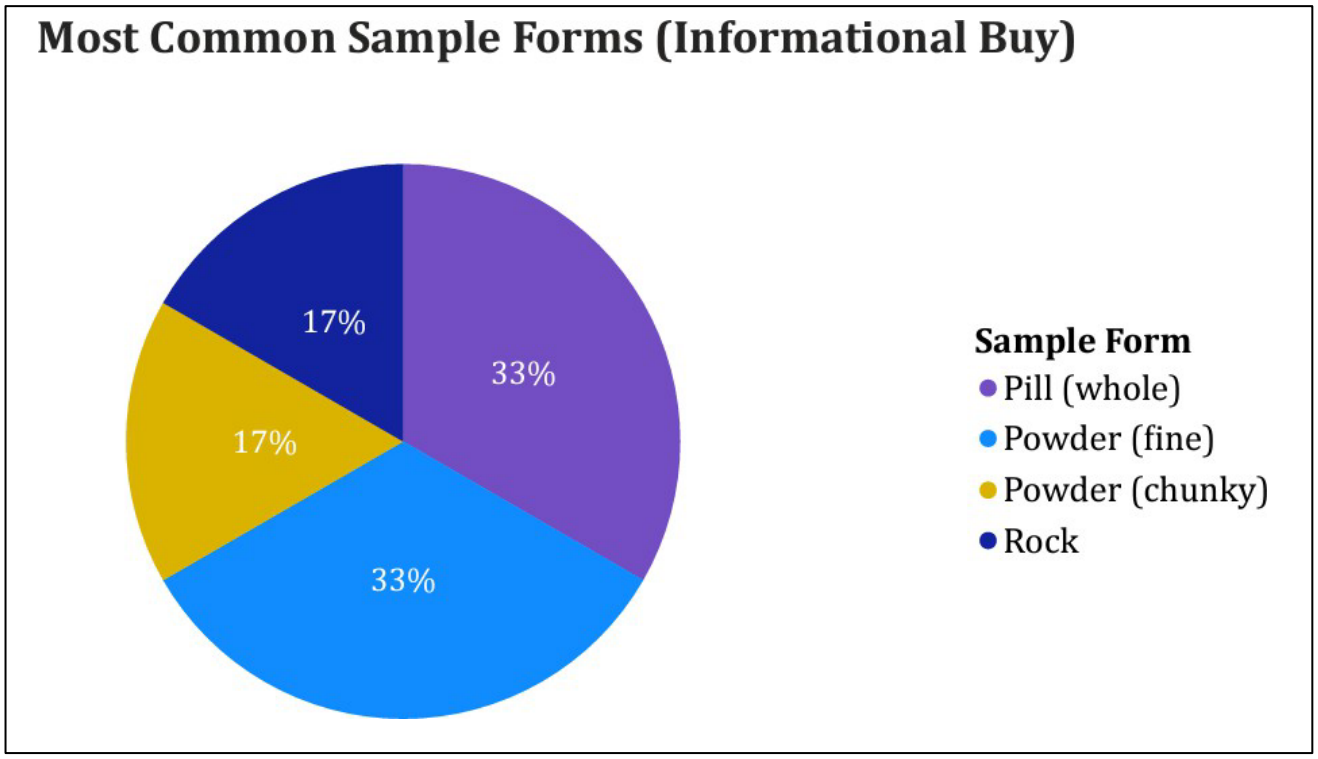


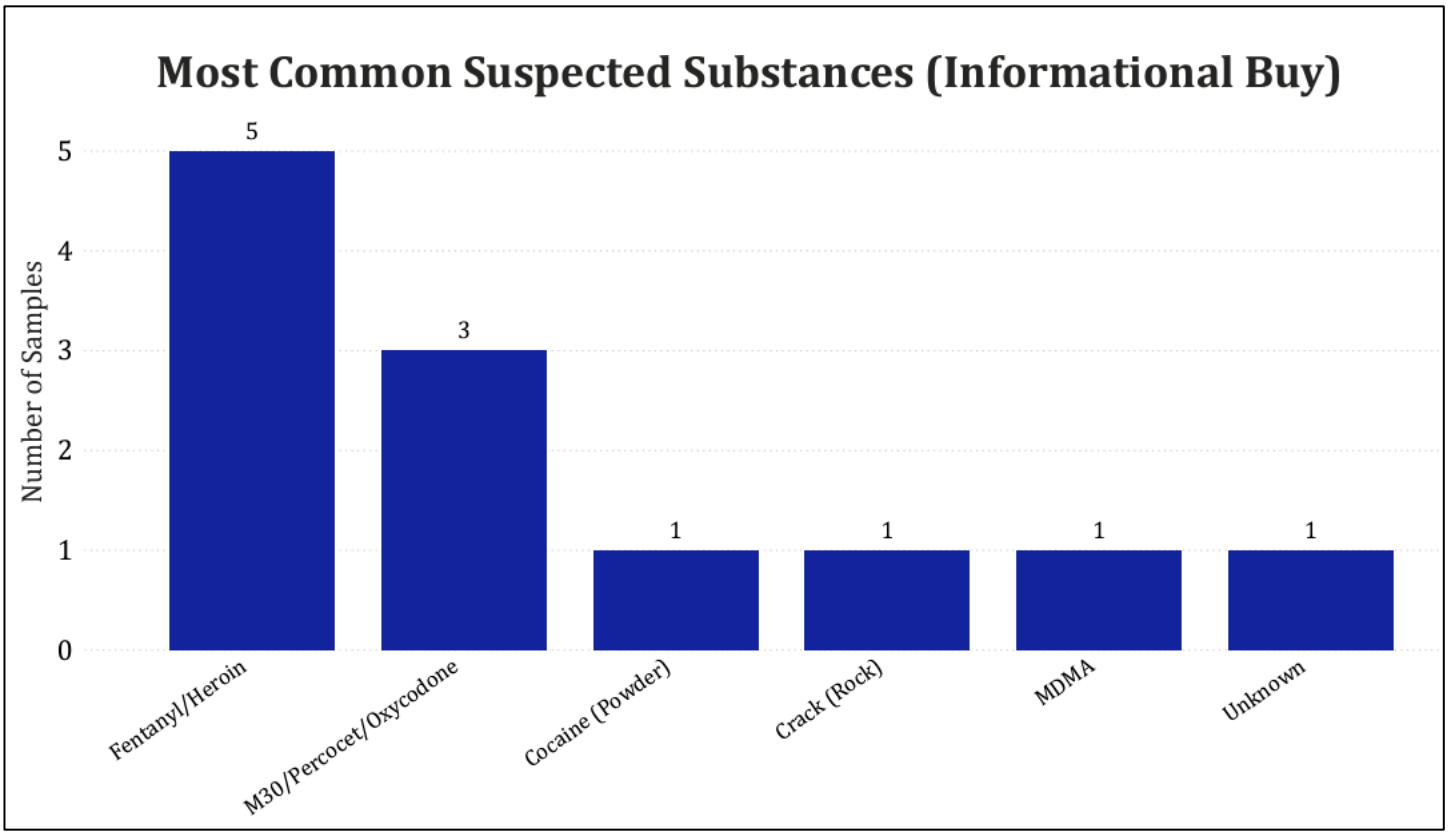


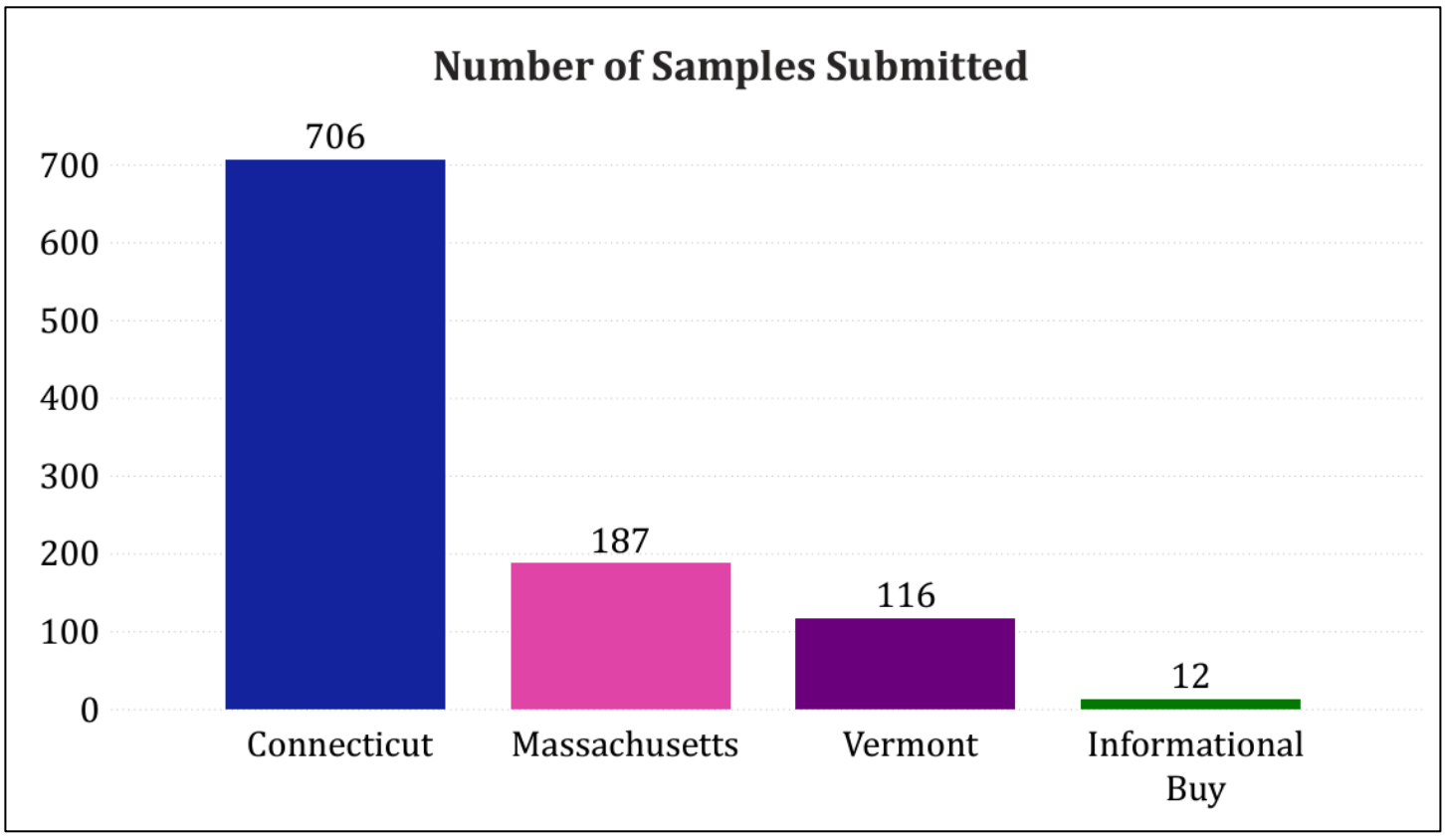
APPENDIX D: Informational Buy Figures

The following figures visualize by informational buy data including the most common packaging materials and sample forms of I-91DS Project-related drug samples, submitted to community partner sites, as well as the most common suspected substances.





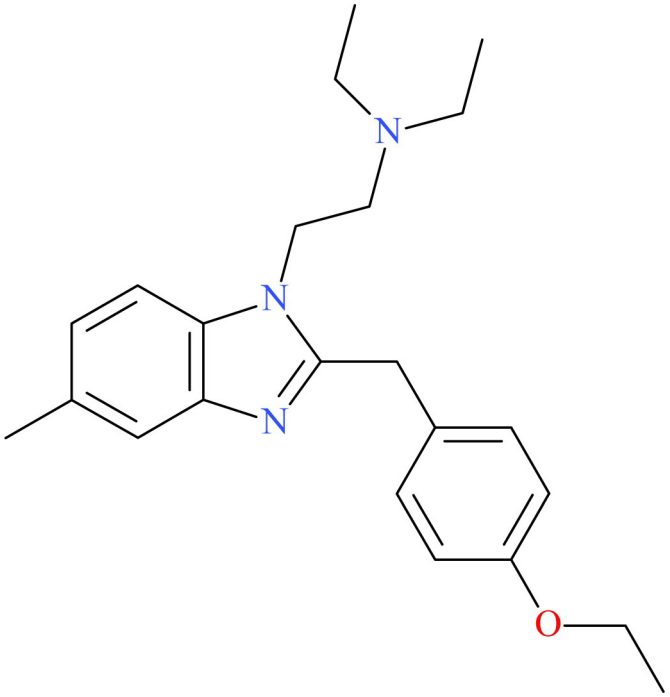

Most Common Suspected Substances (Informational Buy)
Number of Samples
0
1
2
3
4
5
5
3
1
1
1
1
Fentanyl/Heroin
M30/Percocet/Oxycodone
Cocaine (Powder)
Crack (Rock)
MDMA
Unknown


Number of Samples Submitted
0
100
200
300
400
500
600
700
706
187
116
12
Connecticut
Massachusetts
Vermont
Informational Buy

APPENDIX E: CFSRE 5-Methyl Etodesnitazene Report

Hyperlink to online report: https://www.cfsre.org/images/monographs/5-Methyl-Etodesnitazene-New-Drug-Monograph-NPS-Discovery.pdf

5-Methyl Etodesnitazene



NPS SUBCLASS
Opioid
REPORT DATE
August 26, 2024
SAMPLE RECEIVED
December 22, 2023
SAMPLE TYPE
Drug Material

Preferred Name	5-Methyl Etodesnitazene
Synonyms	Etomethazene, 5-Methyl Desnitroetonitazene, 5-Methyl Etazene
Formal Name	2-[2-[(4-ethoxyphenyl)methyl]-5-methyl-benzimidazol-1-yl]-N,N-diethyl-ethanamine
InChI Key	ZARKNPABJGEAOQ-UHFFFAOYSA-N
CAS Number	N/A
Chemical Formula	$C_{23}H_{31}N_3O$
Molecular Weight	365.5
Molecular Ion [M⁺]	365
Exact Mass [M+H]⁺	366.2540

Characterization & Intelligence

The following information was compiled in August 2024 and is subject to change as new research is conducted and as new information becomes available:

Description: 5-Methyl etodesnitazene is a novel synthetic opioid bearing structural resemblance to etonitazene, etodesnitazene, and other nitazene analogues. 5-Methyl etodesnitazene was first detected in January 2024 by our laboratory and was confirmed in comparison to standard reference material.

Sample Source: AIDS Project of Southern Vermont
In Collaboration with StreetCheck

Sample Appearance: White powder

STREET CHECK COMMUNITY DRUG CHECKING

Pharmacology: *In vitro* pharmacological data available for 5-methyl etodesnitazene show that this drug is an active opioid and is approximately 10x less potent than etonitazene, its 5-NO_2 counterpart.[1]

Toxicology: 5-Methyl etodesnitazene has been identified in two toxicology cases to date at the CFSRE.

Drug Materials: 5-Methyl etodesnitazene has been detected in one drug material to date at the CFSRE.

Demographics / Geographics: Drug material originated from Vermont and toxicology cases originated from North Carolina and Connecticut. 5-Methyl etodesnitazene was identified alongside fentanyl, NPS benzodiazepines (e.g., bromazolam), and other nitazene analogues (e.g., metonitazene).

Legal Status: 5-Methyl etodesnitazene is not currently scheduled in the United States.

References:

- Cayman Chemical: 5-Methyl Etodesnitazene
- [1]Kozell *et al.* (2024) Pharmacologic Characterization of Substituted Nitazenes at μ, κ, and Δ Opioid Receptors Suggests High Potential for Toxicity
- [2]De Vrieze *et al.* (2024) *In vitro* structure-activity relationships and forensic case series of emerging 2-benzylbenzimidazole 'nitazene' opioids

About: In collaboration with medical examiner and coroner offices, crime laboratories, clinical partners, and other stakeholders, the Center for Forensic Science Research and Education (CFSRE) is documenting first confirmations of NPS through analysis of drug materials and/or toxicology samples. These reports are generated using comprehensive analytical techniques (e.g., GC-MS, LC-QTOF-MS, NMR) and include available information about the new substances identified at the time of reporting, as well as the analytical data generated during testing. Our new drug monographs are intended to assist with the rapid identification of NPS in forensic casework and related disciplines, and should not be used for confirmatory purposes alone.

Analytical Notes: All identifications were made based on evaluation of analytical data (GC-MS and LC-QTOF-MS) in comparison to analysis of acquired reference material.

Acknowledgements: This report was prepared by Sara E. Walton, Dakota Roberts, Cole Altomare-Jarczyk, Abby Edelmann, Jamie Davis, Max T. Denn, Alexis D. Quinter, Joshua S. DeBord, Traci Green, Barry K. Logan, and Alex J. Krotulski at the Center for Forensic Science Research and Education (CFSRE) at the Fredric Rieders Family Foundation. The authors acknowledge scientists and staff at the CFSRE and Brandeis University for their involvements and contributions. For more information, contact npsdiscovery@cfsre.org or visit www.npsdiscovery.org.

Funding: CFSRE's NPS Discovery is supported by the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice (Award Number 15PNIJ-22-GG-04434-MUMU, "Implementation of NPS Discovery – An Early Warning System for Novel Drug Intelligence, Surveillance, Monitoring, Response, and Forecasting using Drug Materials and Toxicology Populations in the US"). The opinions, findings, conclusions and/or recommendations expressed in this publication are those of the author(s) and do not necessarily represent the official position or policies of the U.S. Department of Justice.

Suggested Citation: Walton, SE; Roberts, D; Altomare-Jarczyk, C; Edelmann, A; Davis, J; Denn, MT; Quinter, AD; DeBord, JS; Green, T; Logan, BK; Krotulski, AJ. (2024) *5-Methyl Etodesnitazene — NPS Discovery New Drug Monograph*, Center for Forensic Science Research and Education, United States.

Gas Chromatography Mass Spectrometry (GC-MS)

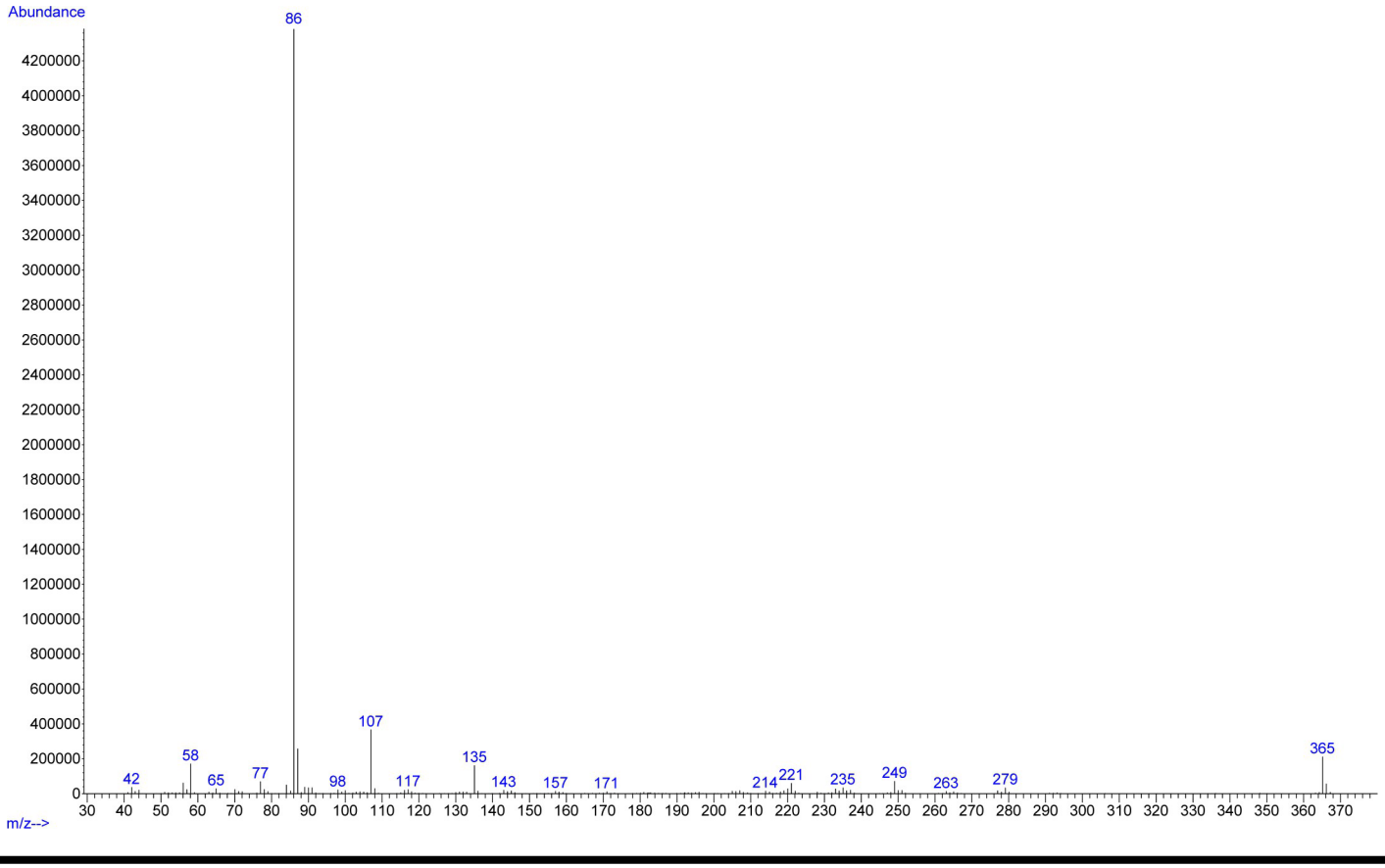
Laboratory: Center for Forensic Science Research and Education (CFSRE, Willow Grove, PA, USA)

Sample Preparation: Dilution in methanol

Instrument: Agilent 5975 Series GC/MSD

Methods: GC-MS Method Details & Monographs

GC-MS: Mass Spectrum (EI 70 eV)



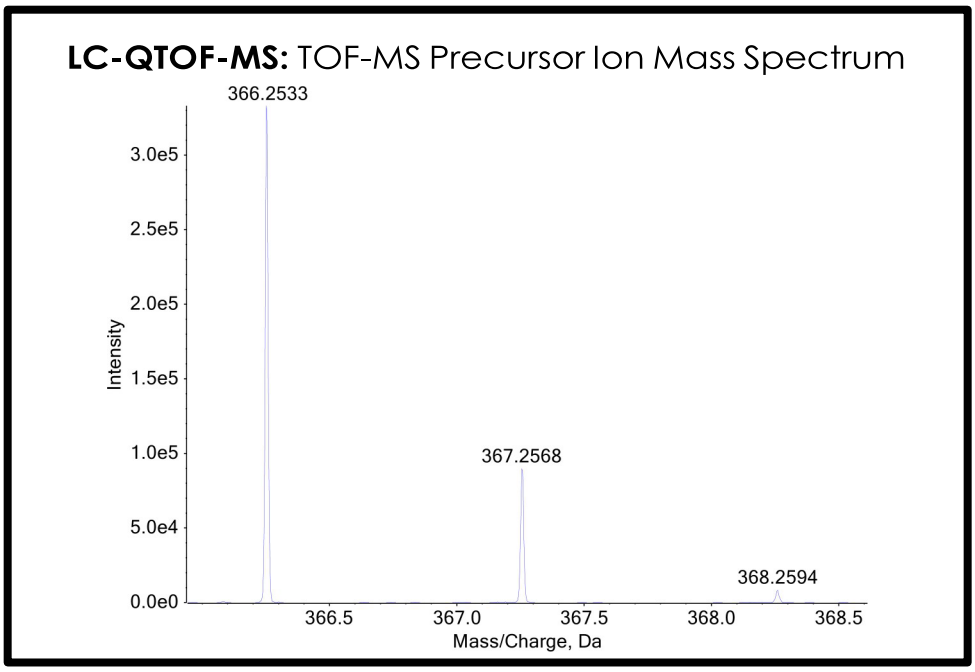
Liquid Chromatography Quadrupole Time-of-Flight Mass Spectrometry (LC-QTOF-MS)

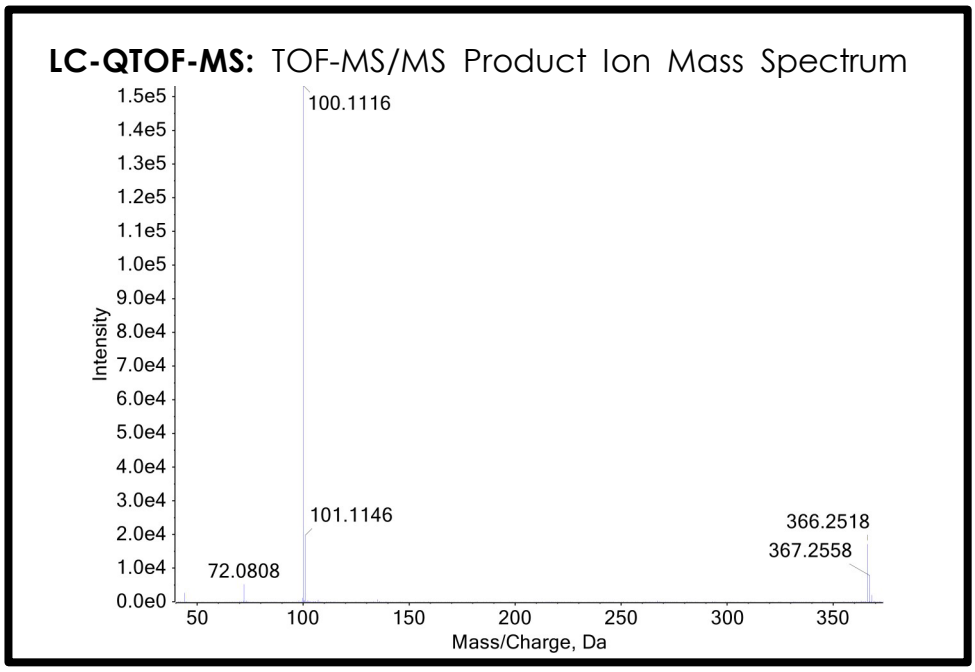
Laboratory: Center for Forensic Science Research and Education (CFSRE, Willow Grove, PA, USA)

Sample Preparation: Dilution in mobile phase

Instrument: Sciex 5600+ LC-QTOF-MS

Methods: LC-QTOF-MS Method Details & Monographs





Confirmation Using Drug Standard: *Reference material (Batch: 0644090-1) was purchased from Cayman Chemical (Ann Arbor, MI, USA). The analyte was confirmed to be 5-methyl etodesnitazene based on retention time (sample: 5.68 min vs. standard: 5.59 min) and mass spectral data comparisons.*