



MADDS Expansion: I-91 Project

Massachusetts Drug Supply Data Stream (MADDS)

NEHIDTA

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Drug Supply

?

- ✓ Drug supply is a major determinant of drug related death
- ✓ Knowing a drug's content informs our responses
- ✓ Only known after a death, hospitalization, arrest, and often way too late to be informative, ***rarely shared publicly***
- ✓ A strategy that boosts samples to toxicology and forensic labs risks overwhelming and delaying an already taxed and critical structural lab system
- ✓ **Field-based tools exist and people can be trained to use them**
- ✓ Protecting **consumer safety is** a proven **prevention** approach

Dissecting the Drug Supply

- Support source identification
- Signatures: Identification of new synthesis, emergence of different synthesis
 - Precursors, mediators, protective components that remain as remnants
 - Consider health effects: harmful and not harmful
- Localized alarms
- Emerging threats

Sold as: Heroin	
GC/MS:	1
• Fentanyl	: 80
• 4-ANPP	: 20 1
• Phenethyl 4-ANPP	: 20
• Cocaine	: 10 1
• Ethyl-4-ANPP	: 5 1
• Tentative Identification - See Note	: 5
• Xylazine	: 5 1
• 4F-Phenethyl-4-ANPP	: 2 1
• 4-Fluorofentanyl	: 1 1

Weak, FTIR found only Lactose; FTS+



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



Community drug checking focuses on supply effects for people using drugs

Community Drug Checking Program Overview

“Massachusetts style”

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



But is it adaptable to CT, VT, rural areas?

What is tested?

- **Remnant drug samples collected or donated**

Once-used
cookers



Once-used
Cottons



Baggies



Wax
folds/stamps



Parts of
pills



Pipes



- How much sample? *About half of a grain of rice*
- For Police Department samples, eligible samples are ***Non-criminal cases only***!
 - Controlled buy, found property, non/fatal overdose, one baggie/stamp bag = personal quantities

Real-time

2-3 weeks, complete testing



Bruker Alpha FTIR



Fentanyl, Benzo,
Xylazine Test Strips



GCMS/LC-QToF by
off-site lab



Medical Toxicology
Consultation



Test with tools, interpret with care

Talk to the donor to learn more!

Information from people who use drugs can help us get better and quicker results. We ask:

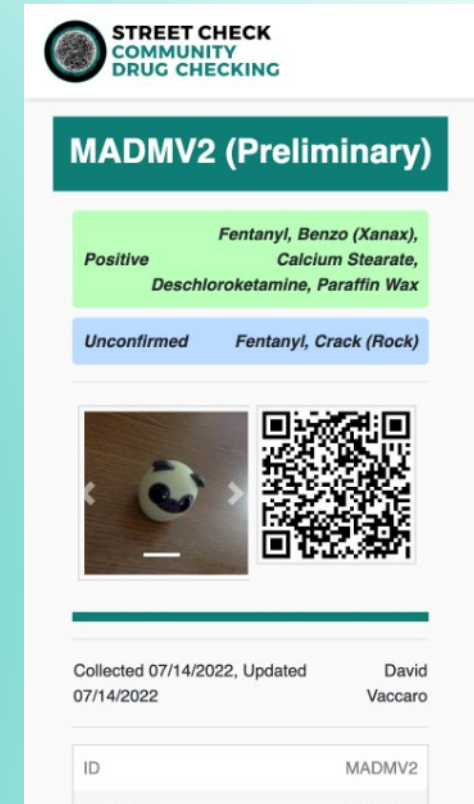
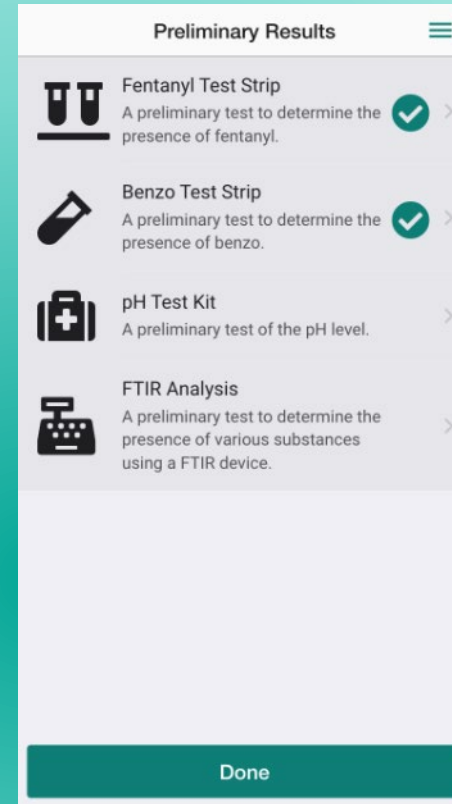
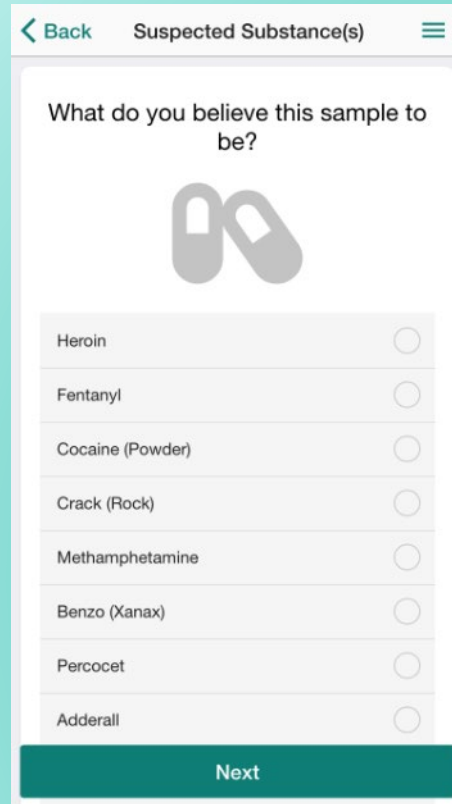
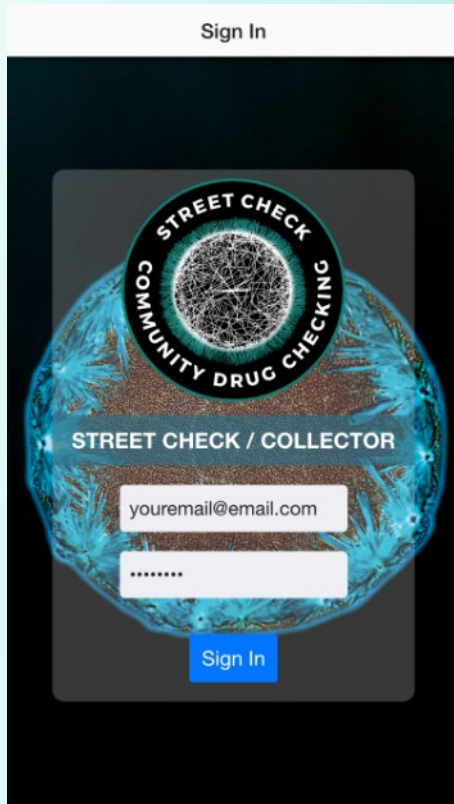


What was it like? Tell us more!

- What was the sample expected to be?
- How was it used? (injected, sniffed, etc.)
- Expected OR unexpected reactions (how “normal” was it)?
- Context information
- Health problems experienced after use (abscess, seizure, overdose)
- Anything else you/they think is important



StreetCheck Web App
www.streetcheck.org



Input data, receive results with a community designed application

Collector-Operator-Administrator



















Groups (community programs), Tenants (states)

+Public-facing trends, limited anonymous sample data

- Home
- Manage Portal
 - Manage Roles
 - Manage Users
 - Manage Content Modules
 - Manage Dictionary
 - Manage Labels
- Manage Samples
 - Untested Samples
 - Initial Samples
 - Tested Samples
 - Complete Samples
 - All Samples
- Reporting

Show 10 entries

Search:

Sample	ID	Laboratory Code	Laboratory	Status	Collected By	Collected On	Modified On	Action
	HST_678			Untested		02/22/2023	02/22/2023	 
	HST_683			Untested		02/22/2023	02/22/2023	 
	MA589			Untested		02/22/2023	02/22/2023	 
	NHT_0639			Untested		02/22/2023	02/22/2023	 
	HST_0709	1238	DrugsData	Initial		02/22/2023	02/22/2023	 
	NHT_0638	1209	CFSRE	Initial		02/22/2023	02/22/2023	 

Current Community drug checking program sites*

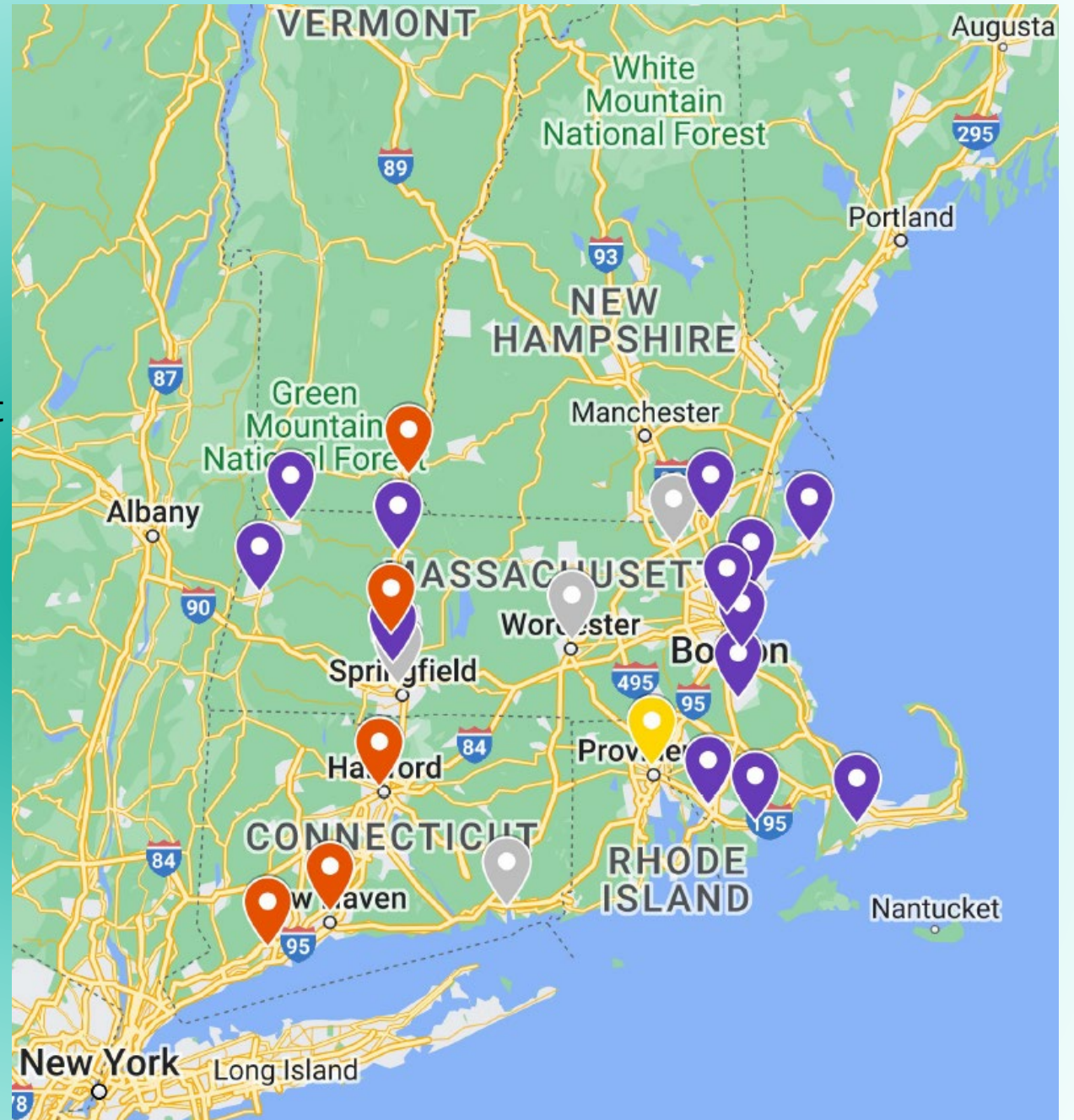
PURPLE=**MADDS**, Massachusetts Public Health Dept

GREY= Sites in progress

YELLOW= NIH- and FORE-funded research projects

RED=I-91 project (Overdose Response Strategy, ONDCP/CDC Foundation)

*Data from all sites pooled on StreetCheck for transparency and sharing



I-91 Project

Community Programs, Locations	ORS Team
VT: AIDS Project of Southern VT (Brattleboro, Bennington)	James Downes (DIO) Stephanie Thompson (PHA)
CT: Connecticut Harm Reduction Alliance (Hartford), Yale Syringe Service Program (New Haven), Liberation Programs (Bridgeport)	Bobby Lawlor (DIO) Anna Gasinski (PHA)
Western MA: Tapestry Health (Holyoke, Greenfield)	Mike Sampson (DIO) Amanda Consigli (PHA)



Yale Community
Health Care Van &
Syringe Service
Program



I-91 Project Site Partners

Harm reduction organizations

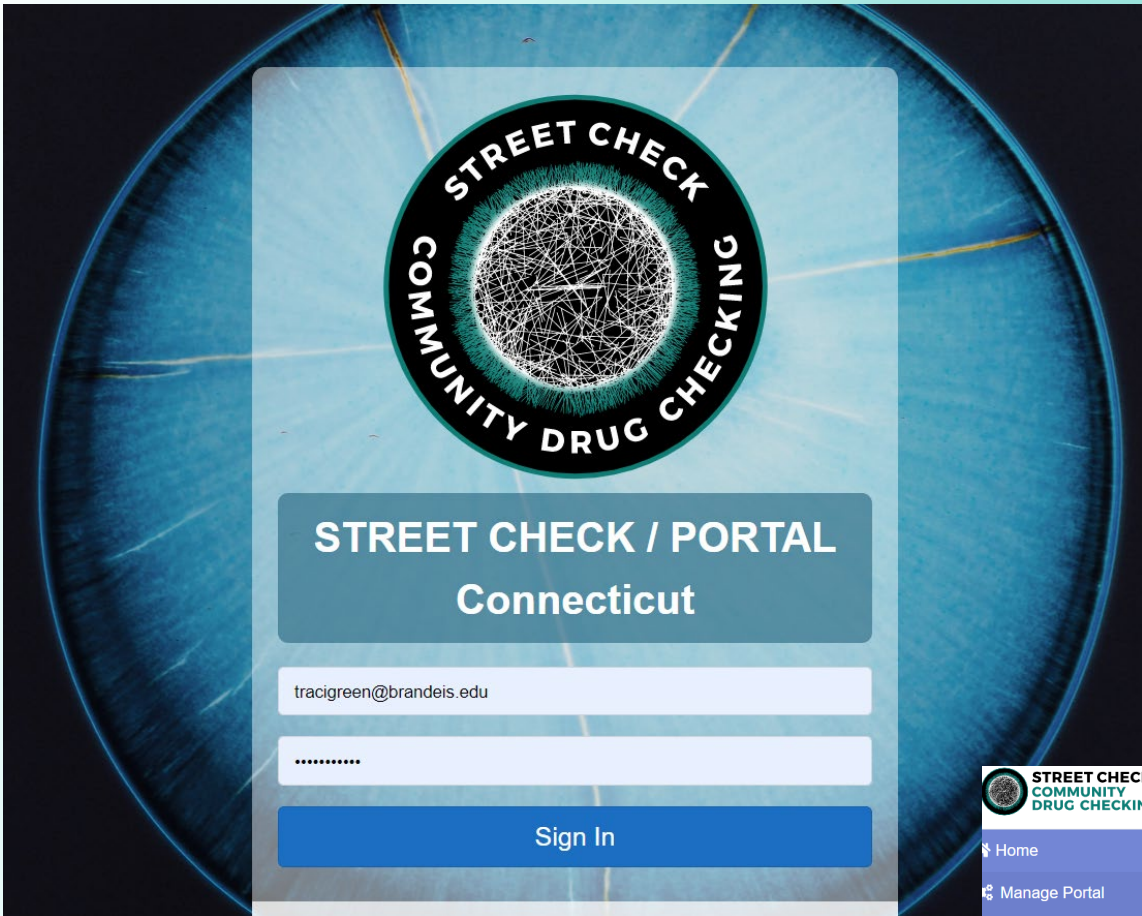
- Bridgeport, New Haven, Hartford
- Holyoke, Greenfield
- Brattleboro, Bennington

Willing to work in collaboration
with ORS partners to implement
project



Orientation, Training

- Site visits to share, meet staff, prepare space
- Online and in-person trainings, refresher
- Ongoing supports, consultations
- Learning collaborative, drop-ins



STREET CHECK COMMUNITY DRUG CHECKING Massachusetts

Massachusetts

Home
 Manage Portal
 Manage Roles
 Manage Users
 Manage Content Modules
 Manage Dictionary
 Manage Labels
 Manage Samples
 Untested Samples
 Initial Samples
 Tested Samples
 Complete Samples
 All Samples
 Reporting

Organization	Location	Count of Samples
Seven Hills	Fall River	3
Seven Hills	New Bedford	36
SSTAR	Fall River	44
Tapestry	Greenfield	154
Tapestry	Northampton	187
Total Samples		3058

Sample Origin Breakdown

Sample Origin	Percentage
Boston	24.9%
Lynn	10.5%
Lawrence	8.6%
Pittsfield	8.2%
Quincy	7.8%
New Bedford	6.9%
Other	4.6%
Other	3.8%
Other	2.6%
Other	1.4%
Other	1.4%
Other	0.2%
Other	0.1%

Number of Samples Collected & Submitted Over Time by Organization

Organization

- Access Hope
- AHOPE
- Brandeis University
- Brockton Neighborhood Health
- Fenway Health Center
- Greater Lawrence Family Health
- Healthy Steps
- Healthy Streets
- Manet
- OneStop

StreetCheck Orientation

What did and *didn't* happen with public safety partners?

- No police departments in any of the sites provided samples for testing or participated as an active site
 - State-specific challenges: staffing/personnel, permissions, uncertainty in direction from courts
- **All** police departments engaged in multiple meetings with the team and provided active or tacit (written) support of the project
- Reconnected with community harm reduction partners
- “New page” in post-COVID-19 era efforts

Getting to 'Yes': Innovations in Permissions

Memorandum of Understanding-style

MEMORANDUM OF UNDERSTANDING

BETWEEN
BRANDEIS UNIVERSITY
AND
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:

1. The Berkshire District Attorney's Office (BDAO) will support the RACK Study by:

Memo-style



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 01103

CF 0149-22

Dear Ms. Zoll,

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 (I91DC)", which is an expansion of the Massachusetts Drug Supply Datastream and related efforts referred to more broadly as the Streetcheck Drug Supply Datastream.

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.

Presence of Xylazine
in Samples - Over
Time



Presence of Fentanyl
in Samples - Over
Time



Combinations of Active
Cuts Detected in
Samples - Over Time



Active Cuts Detected
by Primary Chemical



Inactive Cuts Detected
by Primary Chemical

Expected vs Detected
Primary Chemical

Most Common Active
Substances Detected
by Sample Origin

Breakdown of
Fentanyl Analogues
Detected

Results

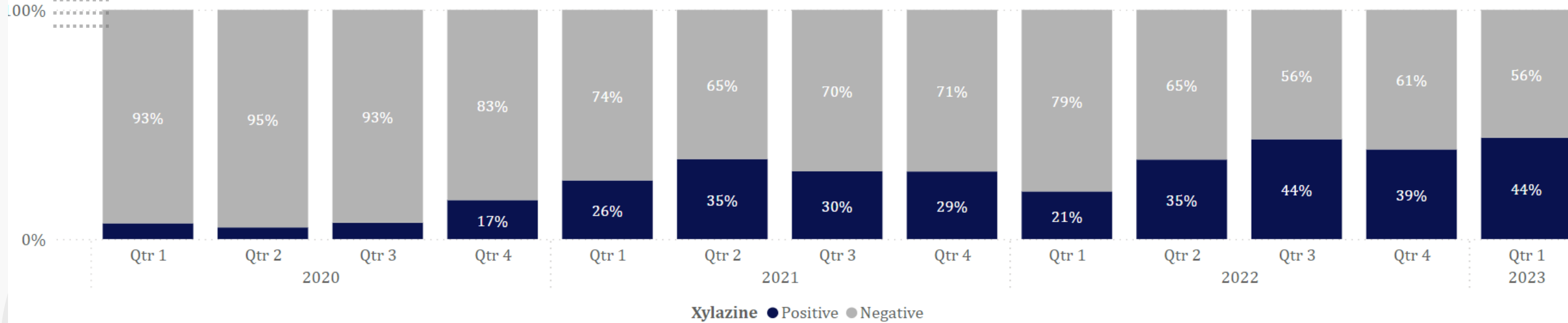
All community partner sites fully operational

Over 500 samples collected and tested across the project sites in one year

All data and quick reports publicly accessible on [Streetcheck.org](https://streetcheck.org) by state, or together

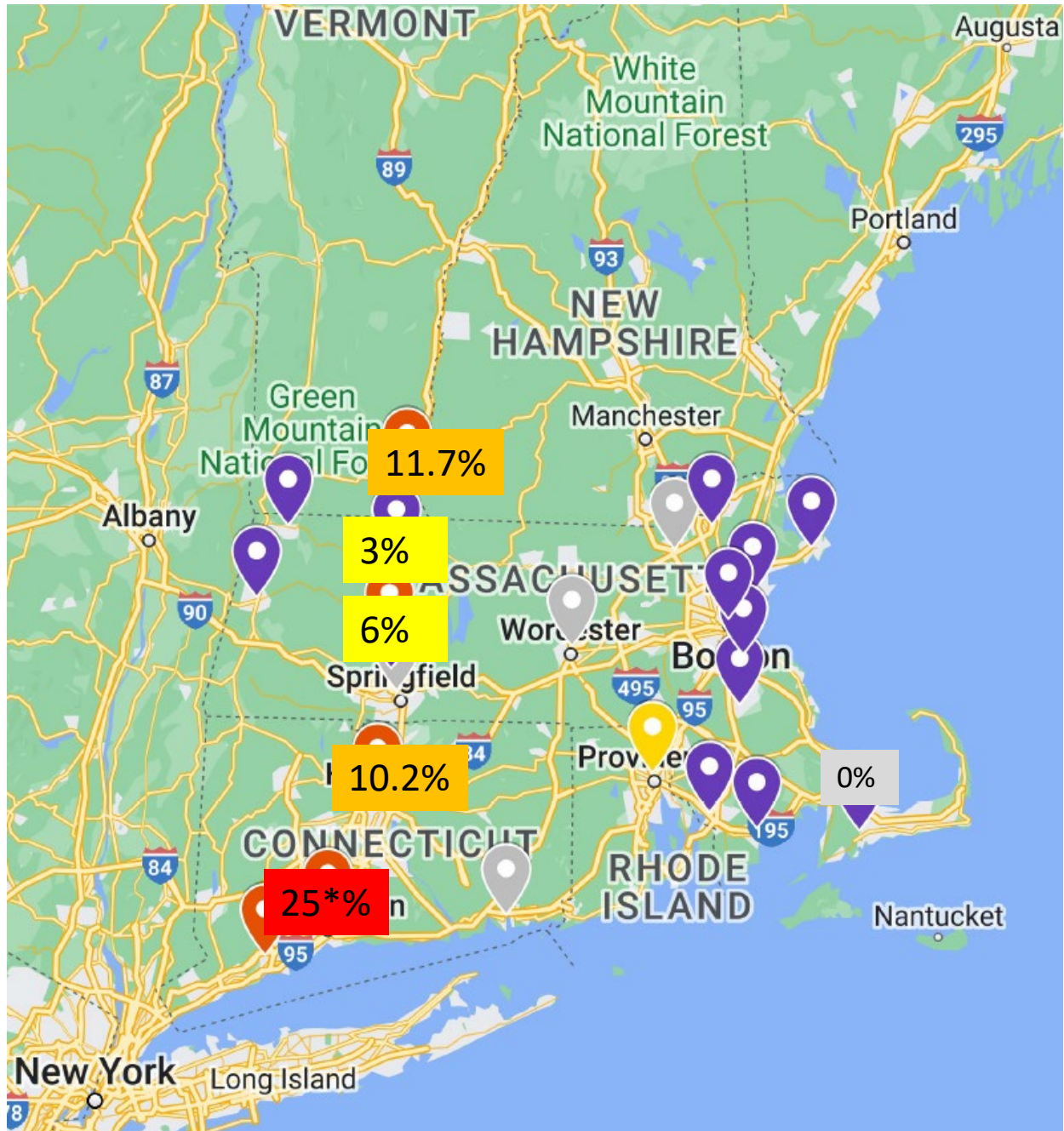
[Back to report](#)

PRESENCE OF XYLAZINE IN SUBMITTED SAMPLES - OVER TIME



Xylazine Prevalence in Opioids

- Across CT, MA, VT samples
- Opioid samples only, over time
- Detected as pills (M30, Percocet) and powders (heroin/dope/fentanyl)
- Some local trends: brown or color used to differentiate from white powders



So, it's present, but how much Xylazine is in a given drug?

Quantification (% weight)

CFSRE weighs samples of 10mg+

Derives % inactive drug, % fentanyl/analogs (purity ratio), % heroin, % xylazine

High variability

In contrast, Philadelphia xylazine ranges 25%-40% weight

Lessons learned: Can community drug checking be adapted to other states, rural areas?

- Interfaces with mobile outreach work well
- Can fit into clinical space, phlebotomy space, office space, big or small
- Harm reduction staff can be trained to conduct all aspects of program
- Mailing samples is less preferable to real-time testing and should be available to all, especially rural partners



Lessons Learned

Community harm reduction organizations are true experts and do amazing things with this tool in their toolbox

- “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!”

Lessons Learned

- Collaboration with ORS partners was critical for talking with local leadership and law enforcement
- StreetCheck is a versatile platform and can be adapted and used in other states
- Diversify labs
- Legislative action may be needed
- Whenever possible, avoid starting a multi-state community project during a pandemic 😊

Addressing Barriers and Challenges

“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.**”

- Provided small incentives (\$5 giftcards) to support outreach team’s initial discussions
- Business cards, incorporate into outreach messaging
- Secure highest level legal and other permissions as possible to protect staff, participants
- Invest in collaborations, communications with public health and public safety

Permissions and MOUs

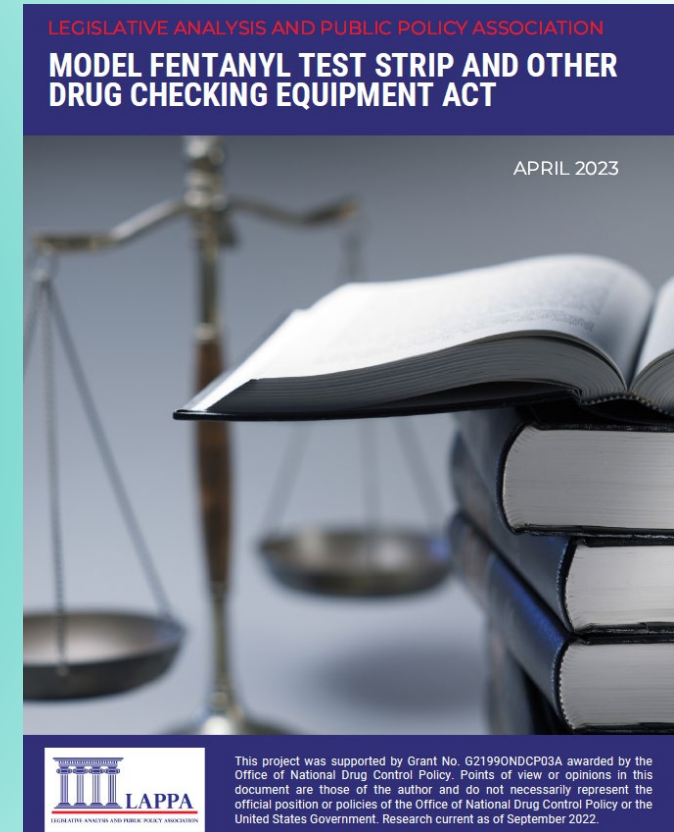
- Memo (CT, MA)
- State’s Attorneys meetings
- Tenacity and persistence

Supply chain delays in instruments, supplies

- Mail-based initial sample collection

Staffing constraints (public safety)

- Focus on community program scale-up



<https://legislativeanalysis.org/model-fentanyl-test-strip-and-other-drug-checking-equipment-act/>

How people use the data

“We are using our drug trash checking results to **create different forms of communication** to people who are at risk of overdose to inform them about what is in their substances. In addition to testing samples for people who use drugs, there is also value to testing samples and sharing results with people who sell drugs. For example, during a nationwide Adderall shortage, one person who took part in the drug checking initiative learned that what they were selling were pressed meth pills. Since learning this, the person informed the people purchasing the Adderall pills what is actually in them. In turn, the people purchasing them are now better equipped with understanding what they are putting in their body and how it will affect their body differently.”

How people use the data

“We use our results to **inform participants of trends**, **monitor above average fentanyl surges**, and **tailor or pivot our outreach** (ex. adding more wound care or focusing on an area with high overdose rates).”

Supply caretaking: To explore local drug market trends (dilution, adulterating), reflect back anomalies, and also share helpful actions that suppliers are taking or could take.

How people use the data

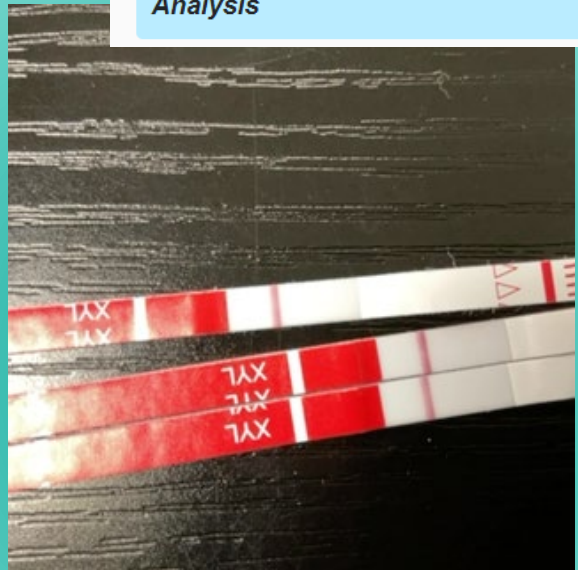
Developing **new partnerships**, reaching **new demographics of PWUD** to share information, drug checking services, and **connecting to other harm reduction services and materials**

- More racially and geographically diverse groups of PWUD
- PWUD by different routes of administration (oral, insufflation) who may not otherwise attend SSPs

Typical sample

Awaiting Laboratory Analysis

Initial Analysis: This sample probably contains mostly 'Lactose' with 'Mannitol, Xylazine' and trace levels of 'Fentanyl / Analogue'



- Injected: normal, nothing out of the ordinary
- Weaker than old dealer but consistent with new dealer
- Normal experience, all from same dealer, same day use

Drug checking: more than just alerts

FTIR Results	
Substance	Component
Lactose	Major
Mannitol	Minor
Fentanyl / Analogue	Trace
Xylazine	Minor

What is "normal", what can be expected

Promotes dignity, awareness, self-care

Learning opportunity

Atypical samples

March 2023



Wk 1:
Not yet used



Wk 2:
Used, stronger than usual, developed abscesses

April 2023

Wk 5:
Multiple overdoses (nonfatal, fatal)



- Injected: stronger than usual, tasted and smelled like CHEMICALS.
- No "dope rush", just went out. Only used 3 bags vs. usual 5-10. On second use, felt foggy, hard time walking.

FTIR Results	
Substance	Component
Xylazine	Major
Fentanyl	Major
Mannitol	Unknown

Active Component	Ratio
Xylazine	200
Fentanyl	100
4-ANPP	50
Heroin	1

Active Component	Result
Xylazine	5
Fentanyl	2
4-ANPP	1

FTIR Results	
Substance	Component
Xylazine	Major
Fentanyl	Major
Mannitol	Minor

Location: Massachusetts [redacted] Suspected as Heroin

Awaiting Laboratory Analysis

Initial Analysis

This sample probably contains mostly 'Xylazine, Fentanyl' and unknown levels of 'Mannitol'

Key Findings

!! Note that this stamp is associated with several severe overdoses in the local area. Please take care and keep plenty of naloxone with you!!

Xylazine is a strong sedative and high amounts of a strong sedative can be harmful. Learn more [here](#).

2023 ORS Conference

MADDS Drug Checking Program in Vermont

*James G. Downes, III, MS,
Drug Intelligence Officer, ORS*



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the Centers for Disease Control and Prevention



COLLABORATE • SHARE • INFORM & HELP

Drug Intelligence Officers (DIO)

- Partner with public health agencies and public health analysts to bridge communication gap with public safety
- DIOs fill a critical gap in intelligence sharing by:
 - reporting cross-jurisdictional links
 - communicating interstate intelligence
 - relaying case referrals between agencies
 - developing timely intelligence reports for law enforcement audiences



Introduction

Relationship Building
Leverage existing Relationships
Identifying Champions
Sharing the Vision and Mission
Setting the Table
Partner Needs
Information Gaps

**Establishing and Maintaining program Credibility and
Accountability**



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Relationship Building

Relationship Building is Continuous and Evolving



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Setting the Stage

DIO and PHA Positioned Well
Know the Environment
Know the Stakeholders
Existing Environment both Socially, Politically and
Economically
What are the Local Issues
Who are the Champions



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Leveraging Existing Relationships

DIO and PHA Leverage Relationships in both Public Safety and Public Health



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Partner Needs

Identify Partner Needs and Local issues



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Information Gaps

Gaps in Drug Supply
Harm Reduction Gaps
Outreach Gaps in Information
Lack of Data Analysis



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VISION and Mission

Clearly articulate the vision
Share Mission Statement
Align with partners mission and values



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Maintaining Program Integrity and Accountability



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Current Status

*VT Legislation
Opioid Settlement Funding to support state-wide
program investment
VT DOH leadership*



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Thank you!

Questions? Contact

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Thanks to our MADDs team Cole Jarczyk, Staci Sullivan, Sharon Lincoln, Rachel Wightman, Alex Krotulski, Brandon del Pozo, Gail Hall, Dave Vaccaro, Adina Badea, and to our funders CDC, SAMHSA, HIDTA directors

Practice Full Report

OPEN

SDC

Implementation and Uptake of the Massachusetts Drug Supply Data Stream: A Statewide Public Health-Public Safety Partnership Drug Checking Program

Traci C. Green, PhD, MSc; Rebecca Olson, MPH; Cole Jarczyk, BA; Earth Erowid, BA; Fire Erowid, BA; Sylvia Thyssen, BA; Rachel Wightman, MD; Brandon del Pozo, PhD, MPA, MA; Laura Michelson, MSW; Amanda Consigli, MPH; Brittni Reilly, MSW; Sarah Ruiz, MSW, MPH

ABSTRACT

Context: The illicit drug supply is rapidly evolving. Equally important to gathering drug supply data for monitoring is timely sharing of information with people who use drugs, the providers who care for them, law enforcement partners, and public health stakeholders so that efforts to avoid harmful substances, take preventive actions, and better target interventions can occur.

Program: The Massachusetts Drug Supply Data Stream (MADDs) is the country's first statewide community drug checking program. Founded on public health-public safety partnerships, MADDs collects remnant drug packaging and paraphernalia with residue from people who use drugs and noncriminal samples from partnering police departments. MADDs tests samples using simultaneous immunoassay fentanyl test strips, Fourier-transform infrared spectrometry (FTIR), and off-site laboratory testing by gas chromatography-mass spectrometry (GC/MS). Results are accessible to community programs and municipalities, while trend analyses inform public health for cross-site alerts and informational bulletins.

Implementation: MADDs was launched statewide in 2020 and rapidly expanded to a multisite program. Program staff approached communities and met with municipal police and community partners to secure written agreements to host drug checking. Community partners designed sample collection consistent with their pandemic era workflows. Consultations with stakeholders gathered feedback on design and deliverables.

Evaluation: The program tests sample donations on-site from community agencies and police departments, incorporates review by a medical toxicologist for health and safety concerns, crafts stakeholder-specific communications, and disseminates English, Spanish, and Portuguese language materials. For 2020, a total of 427 samples were tested, of which 47.1% were positive for fentanyl. By early 2021, MADDs detected shifts in cocaine purity, alerted communities of a new toxic fentanyl analogue and a synthetic cannabinoid contaminant, and confirmed the increase of xylazine (a veterinary sedative) in Massachusetts.

Discussion: Community drug checking programs can be collaboratively designed with public health and public safety to generate critical health and safety information for people who use drugs and the communities where they live.

KEY WORDS: consumer safety, drug checking, fentanyl, harm reduction, overdose