Community Drug Checking 101

Massachusetts Drug Supply Data Stream (MADDS)

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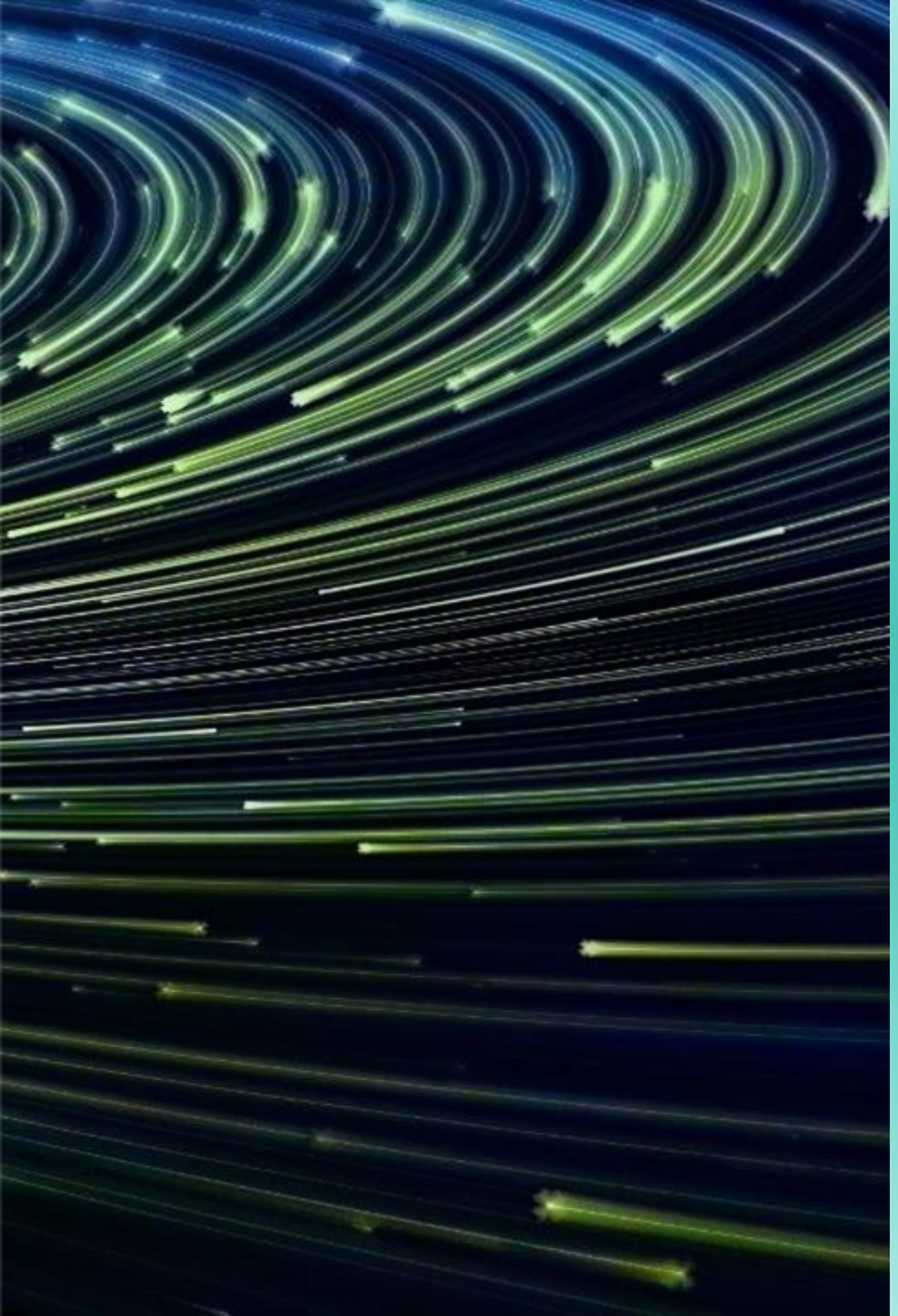
Brandeis UNIVERSITY

Drug Supply

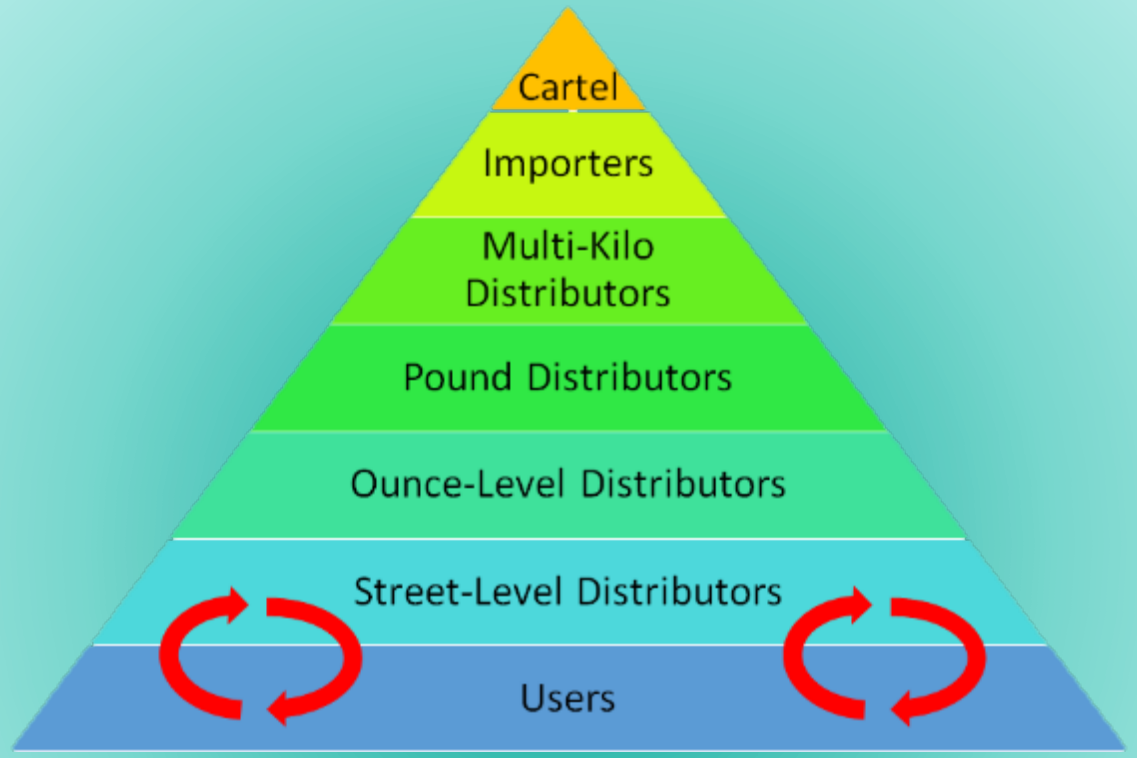
?

- ✓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



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

Drug Checking vs. Drug Testing

- For consumer safety and information purposes, not diagnostic or forensic
- No law enforcement involvement in testing, analyzing
- Community-based
- Harm reduction driven
- Drug supply surveillance/monitoring goals are secondary to individual safety, harm reduction goals

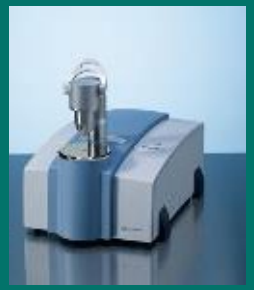
- For diagnostic or forensic purposes
- Law enforcement, treatment, providers conduct testing, analysis
- Regulations forbid community-based operation
- Can be harm producing
- Drug supply surveillance/monitoring goals are secondary to law enforcement, treatment goals

Community Drug Checking Program Overview

“Massachusetts style”

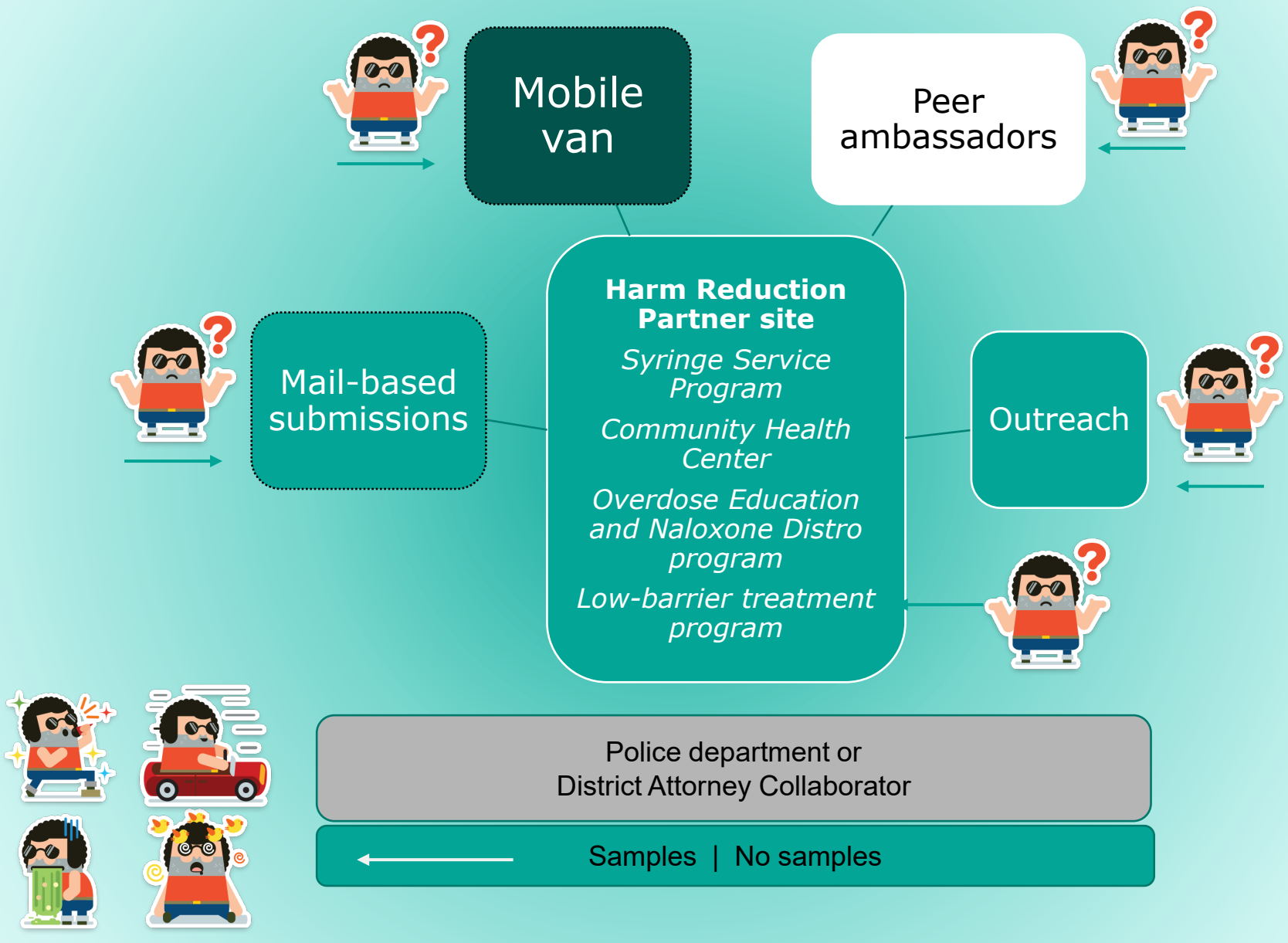
Samples provided from harm reduction partner site/police department and gather situational and subjective information

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

MADDS: Massachusetts Drug Supply Data Stream



Flexible Models: Mobile & Stationery Sites

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

cfsre The Center for Forensic Science Research & Education

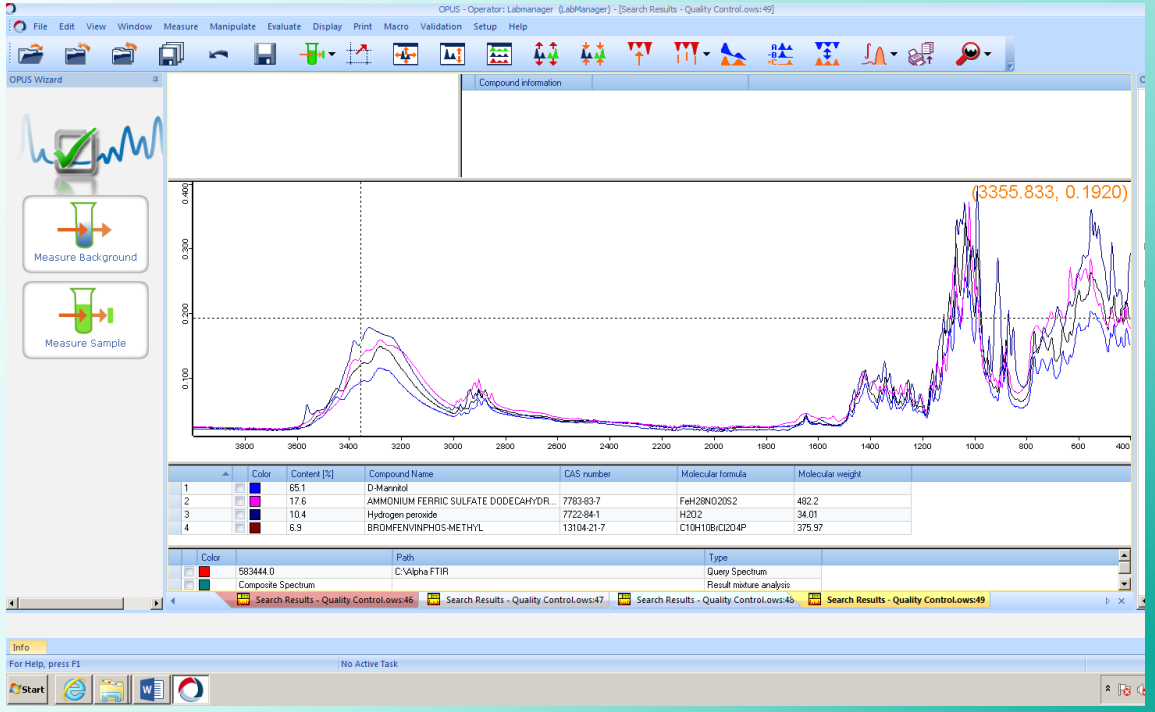
State laboratory

Drugsdata.org

UNC

Rhode Island Hospital

Test with tools, interpret with care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OPUS Wizard
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1 65.1 D-Mannitol
2 17.6 AMMONIUM FERRIC SULFATE DODECAHYDR... 7783-83-7 FeH28NO20S2 482.2
3 10.4 Hydrogen peroxide 7722-84-1 H2O2 34.01
4 6.9 BROMFENVINPHOS-METHYL 13104-21-7 C10H10BrCl2O4P 375.97
Color Path Type
583444.0 C:\Alpha FTIR Query Spectrum
Composite Spectrum Result mixture analysis
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No Active Task
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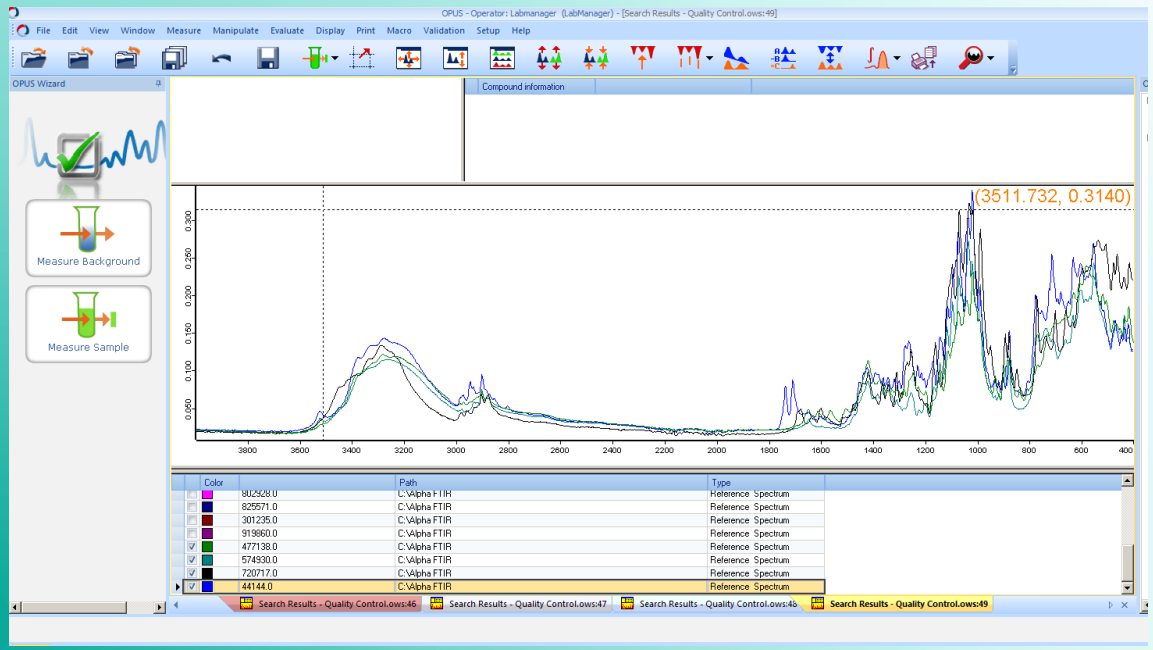
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301235.0 C:\Alpha FTIR Reference Spectrum
919860.0 C:\Alpha FTIR Reference Spectrum
477138.0 C:\Alpha FTIR Reference Spectrum
574930.0 C:\Alpha FTIR Reference Spectrum
720717.0 C:\Alpha FTIR Reference Spectrum
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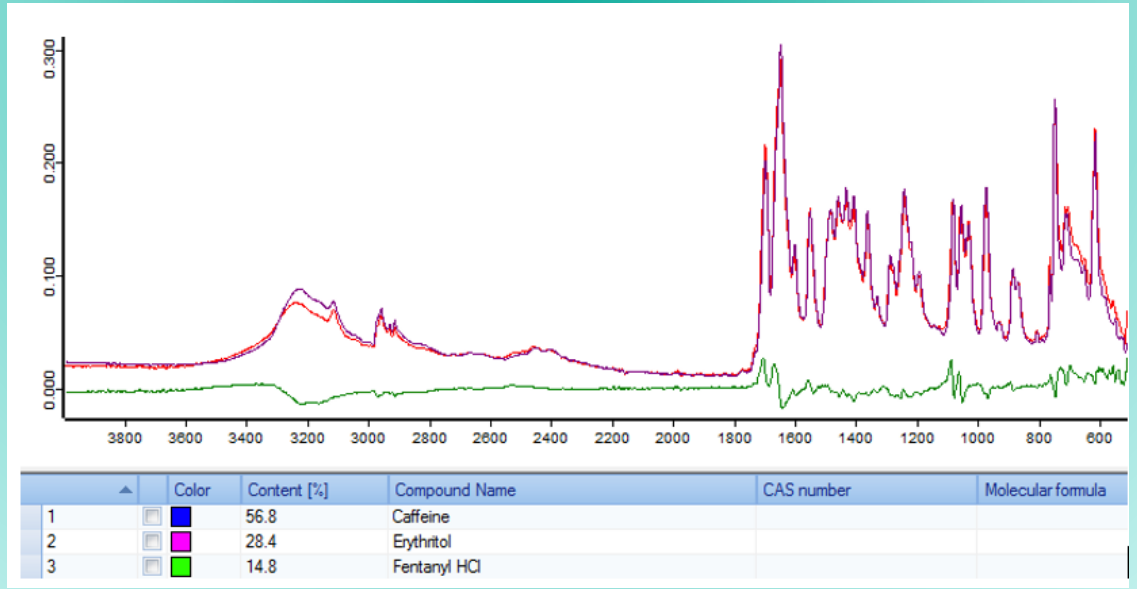

0.300
0.200
0.100
0.000
3800 3600 3400 3200 3000 2800 2600 2400 2200 2000 1800 1600 1400 1200 1000 800 600
Color Content [%] Compound Name CAS number Molecular formula
1 56.8 Caffeine
2 28.4 Erythritol
3 14.8 Fentanyl HCl

Talk to the donor to learn more!

What was it like? Tell us more!

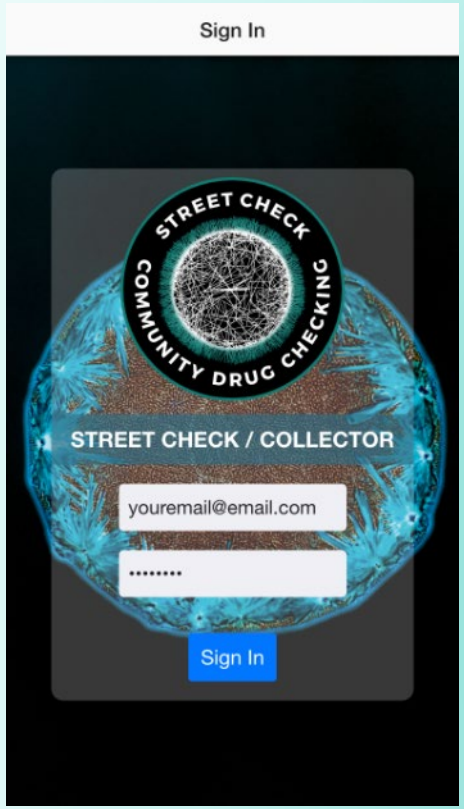
Information from people who use drugs can help us get better and quicker results. We ask:

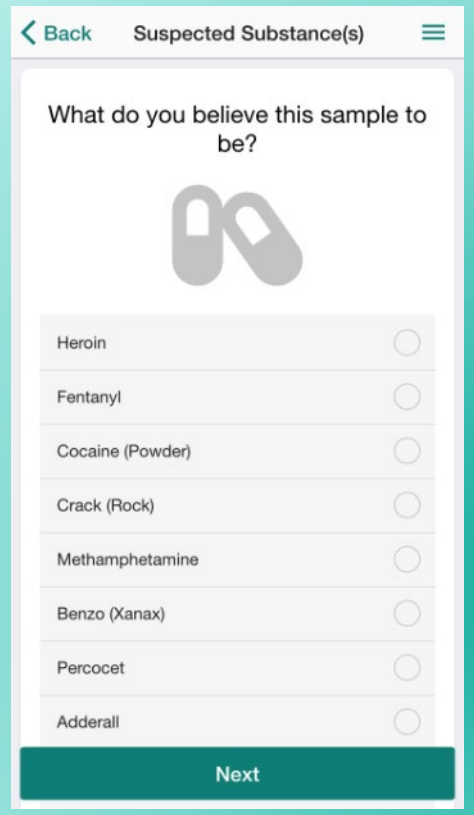
- What was the sample expected to be?
- How was it used? (injected, sniffed, etc.)
- Expected OR unexpected reactions (how "normal" was it)?
- Context information
- Health problems experienced after use (abscess, seizure, overdose)
- Anything else you/they think is important

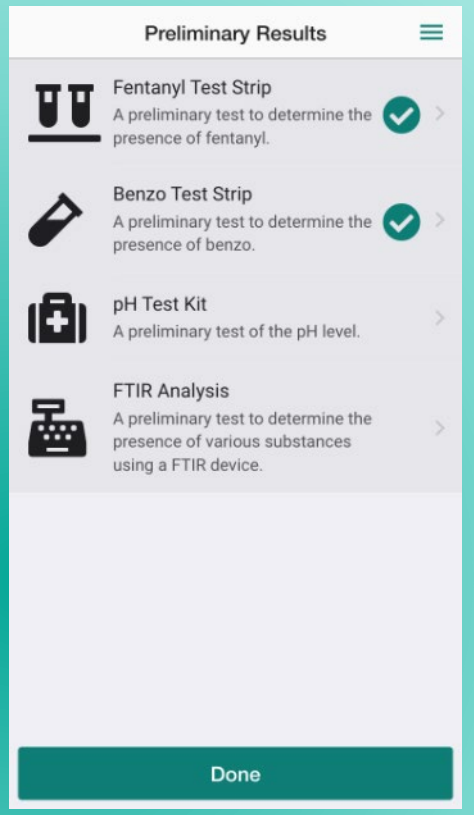
MADDS | Drug Checking | Resources | Q&A | Trends | Get App

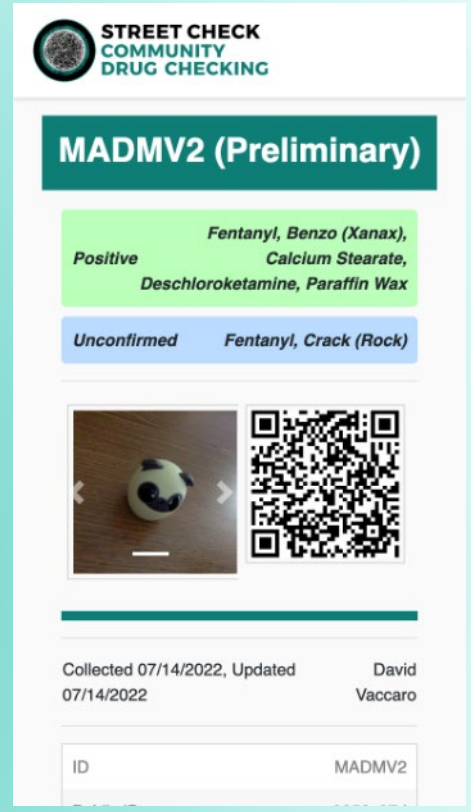
StreetCheck Web App

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*

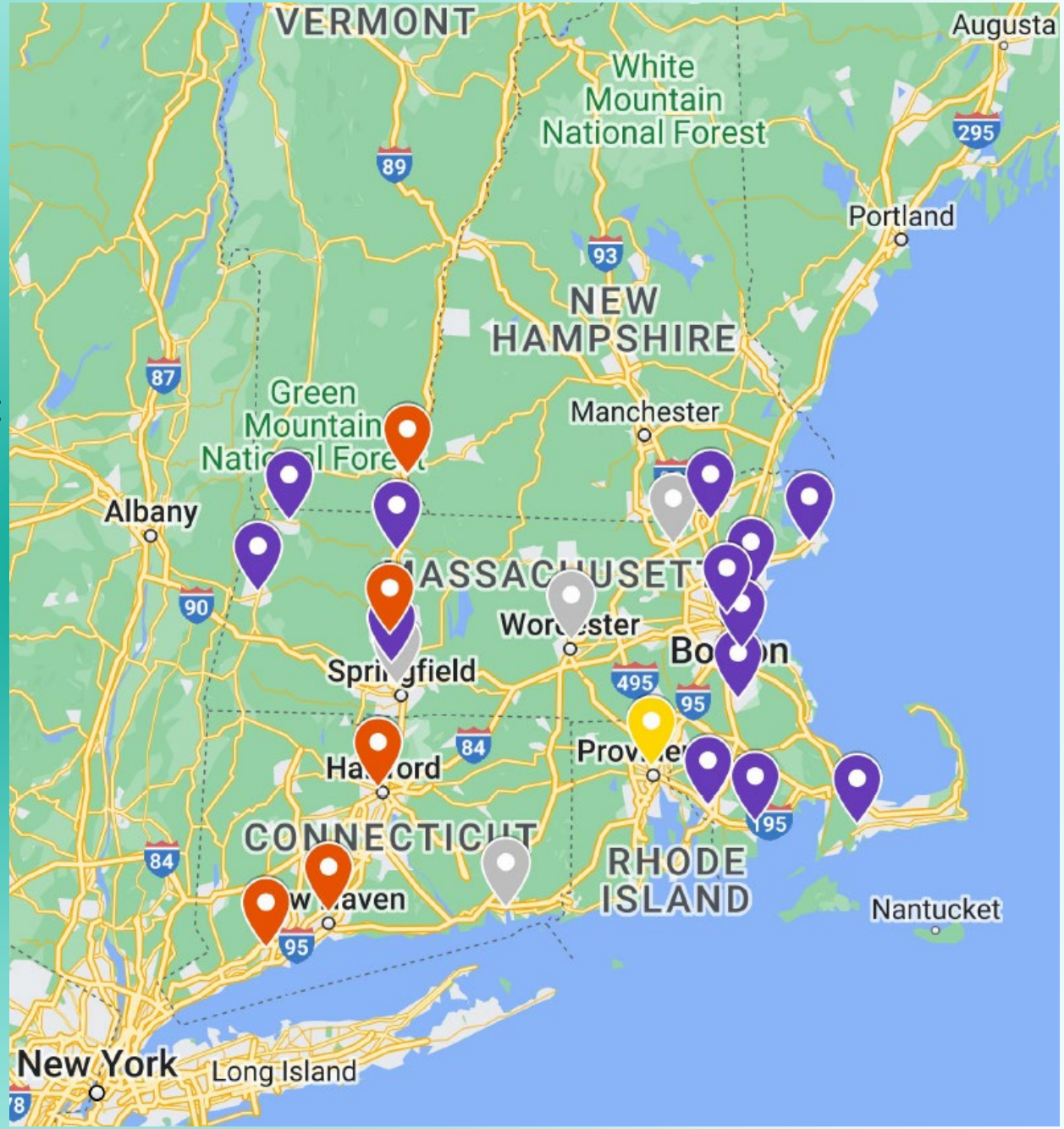
PURPLE=**MADDS**, Massachusetts Public Health Dept

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



Support

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

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

Stephanie Thompson
Public Health Analyst, CDC Foundation

Funded by the Office of National Drug Control Policy and the Centers for Disease Control and Prevention

COLLABORATE • SHARE • INFORM & HELP

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

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

JOSHUA A. GARCIA
Mayor

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.

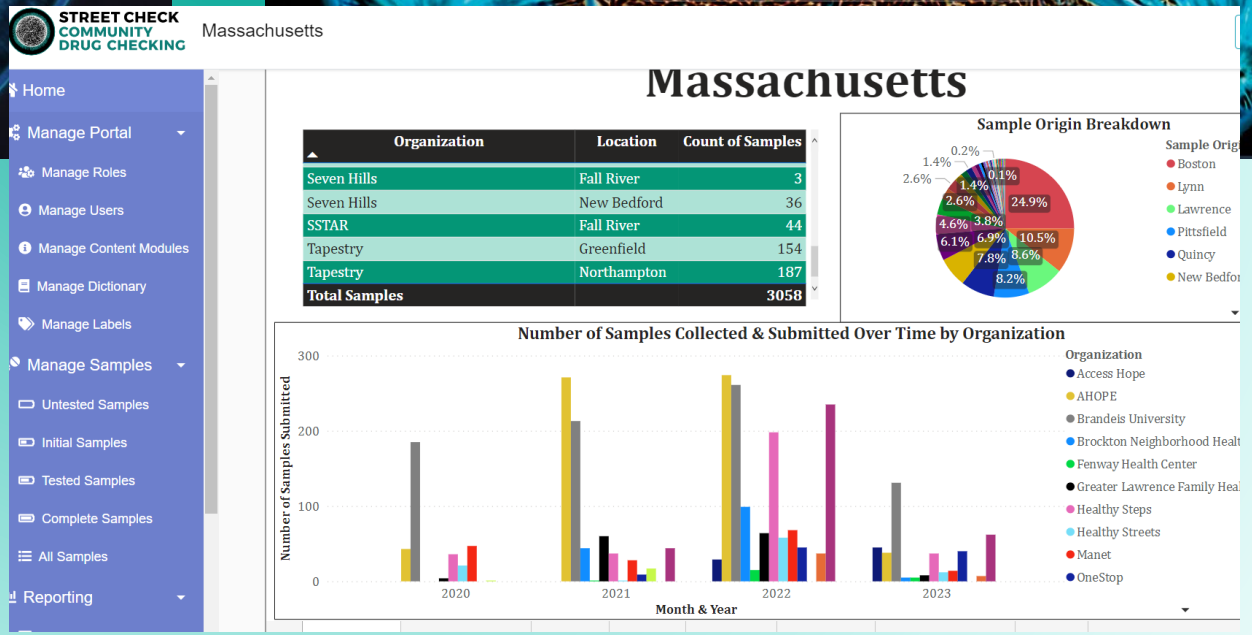
Good luck with the project and we support these efforts for the safety and wellbeing of all in our community.

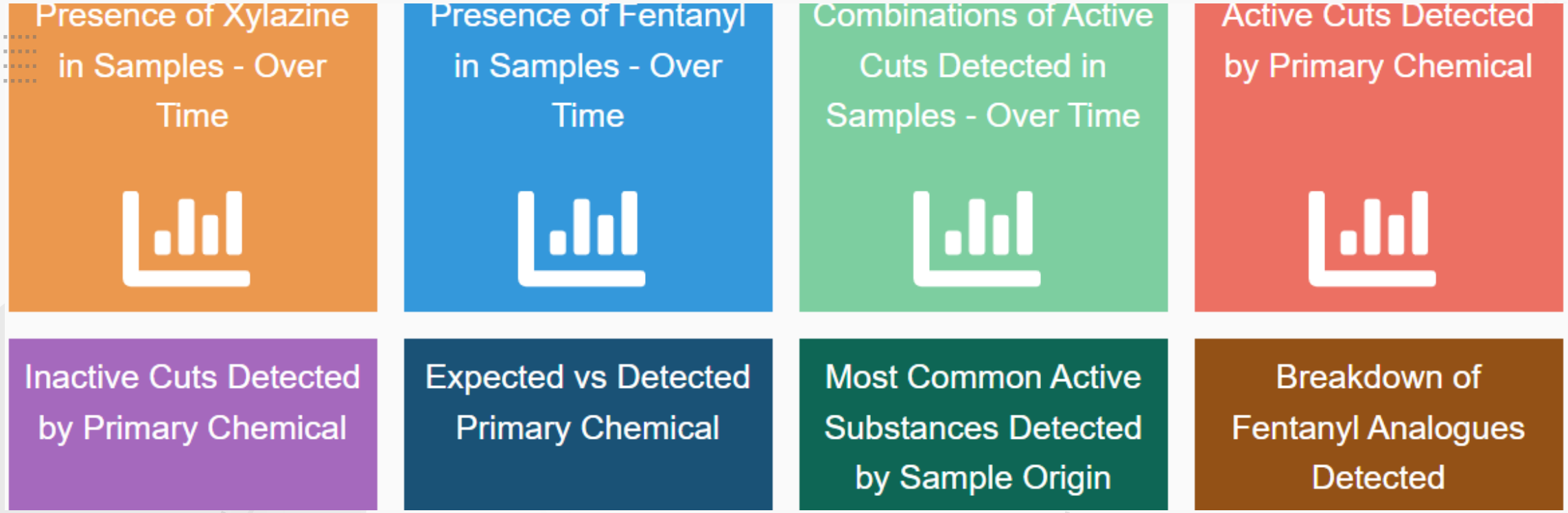
Please let me know if you have any questions.

Orientation, Training

- Site visits to share, meet staff, prepare space
- Online and in-person trainings, refreshers
- Advanced topics training over time
- Ongoing supports, consultations
- Learning collaborative, drop-ins

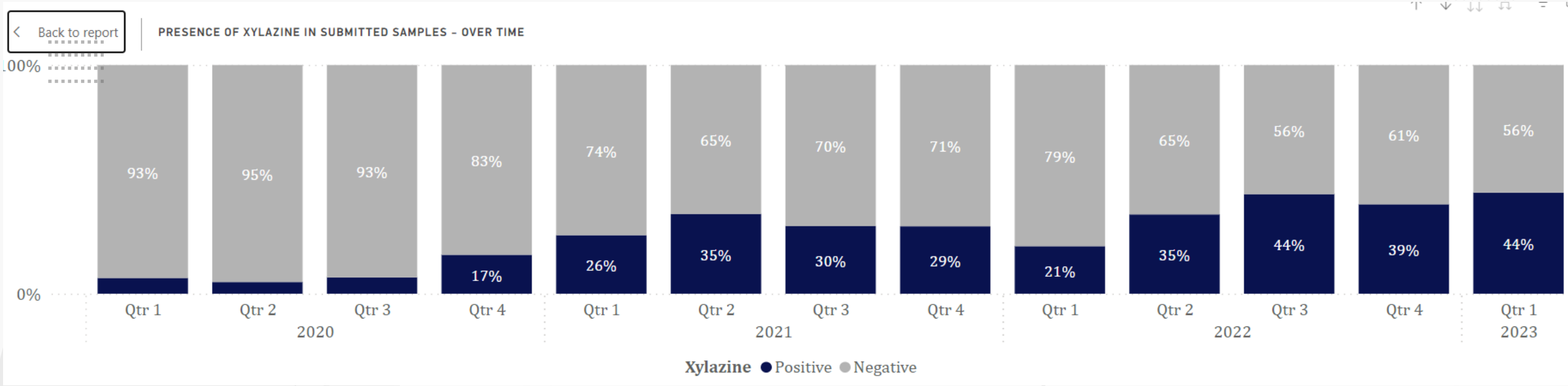
StreetCheck Orientation





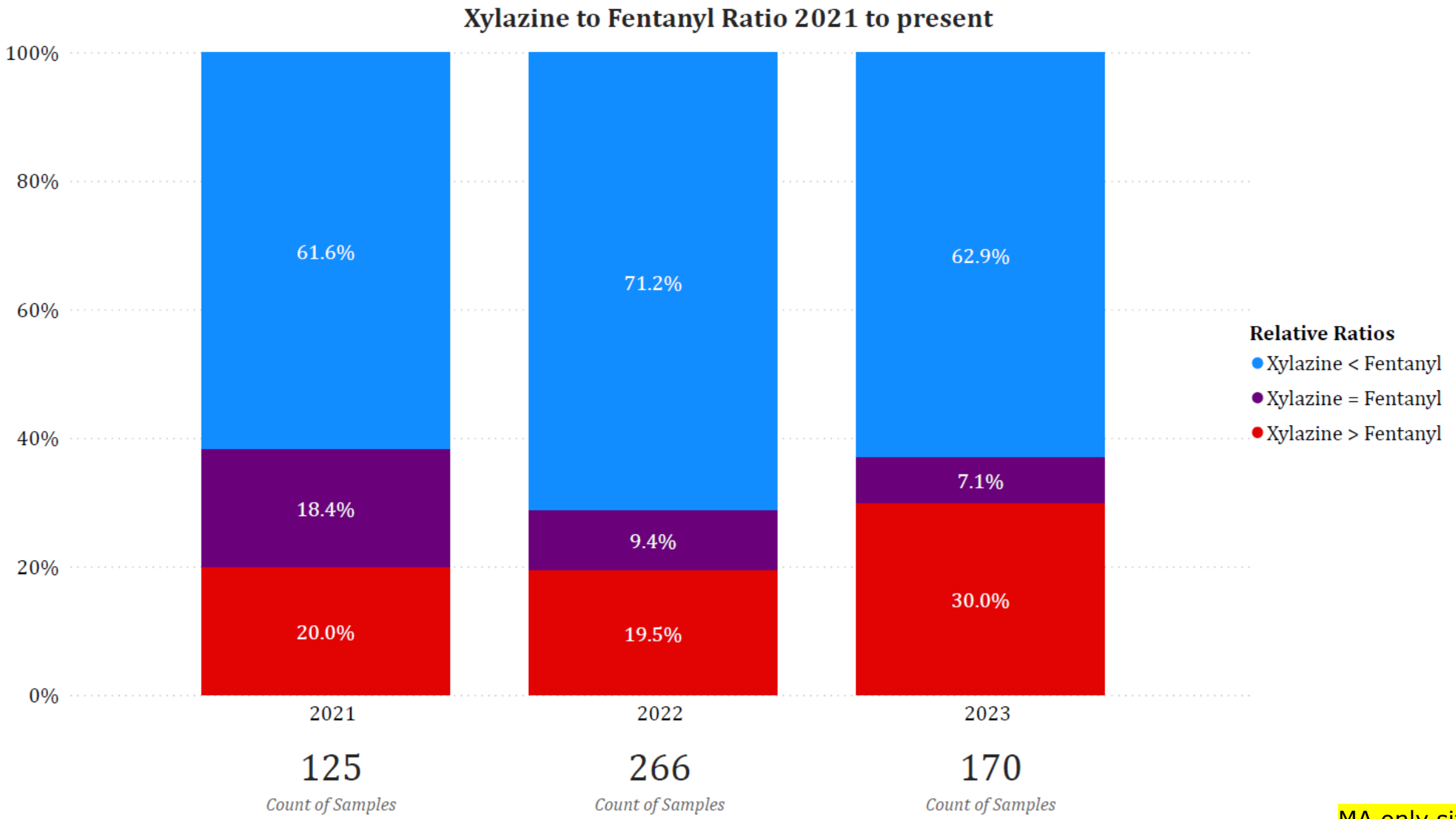
Trends

Sample level and trends/quick reports publicly accessible on Streetcheck.org by state, municipality



Example: Xylazine Prevalence in Opioids

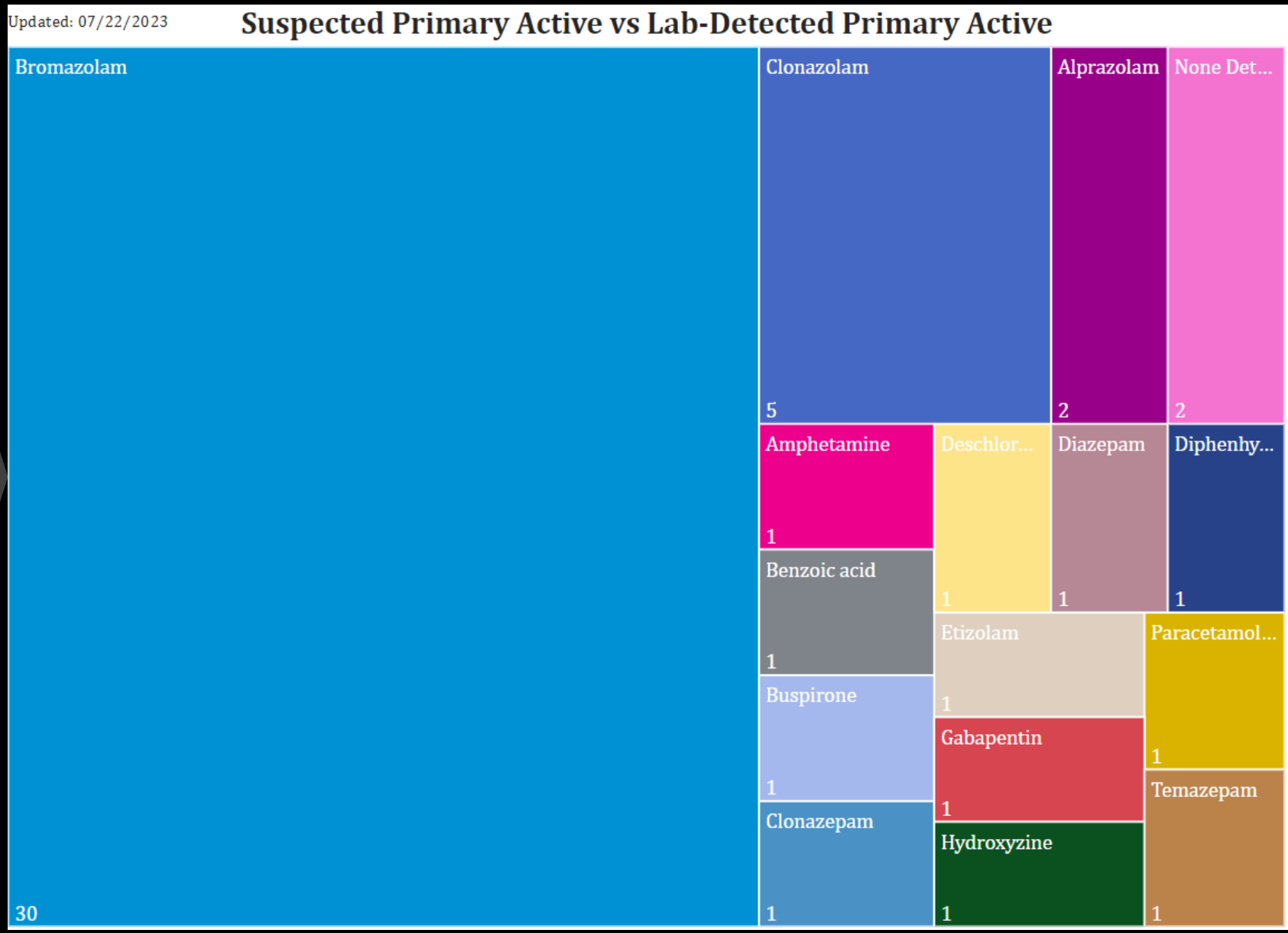
- Across CT, MA, VT samples
- Opioid samples only, over time
- Detected as pills (M30, Percocet) and powders (heroin/dope/fentanyl)
- Some local trends: brown or color used to differentiate from white powders



MA only sites

Benzodiazepines

expected to be
Xanax/alprazolam



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 may be helpful for talking with local leadership and law enforcement
- StreetCheck is a versatile platform and can be adapted and used in other states
- Public health dept, university, hospital, private labs can provide testing
- Legislative action may be needed

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**."

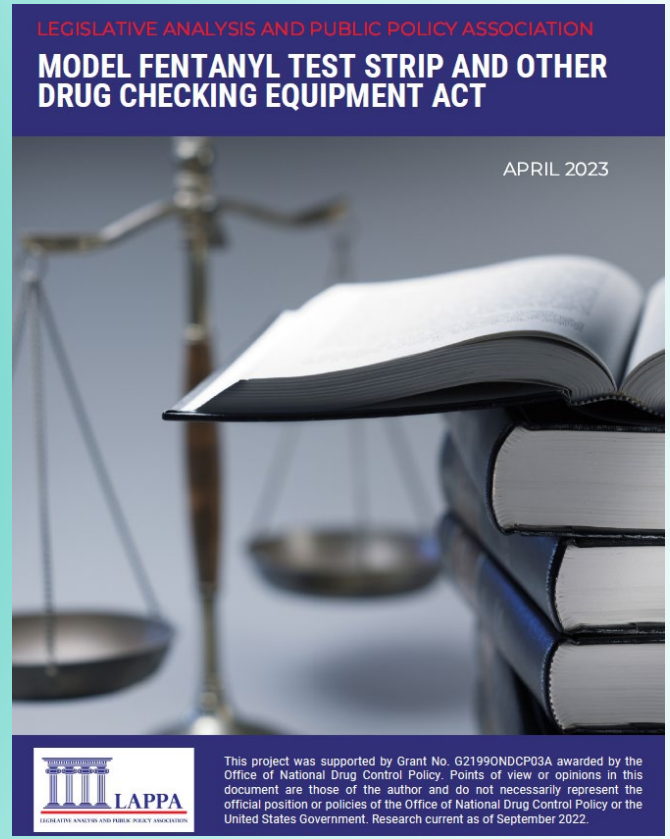
Barrier: Permissions and MOUs

Barrier: Supply chain delays in instruments, supplies

Barrier: Controlled substance regulation (state, federal)

Barrier: Maintaining quality of service

Barrier: Training and staffing



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)."

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

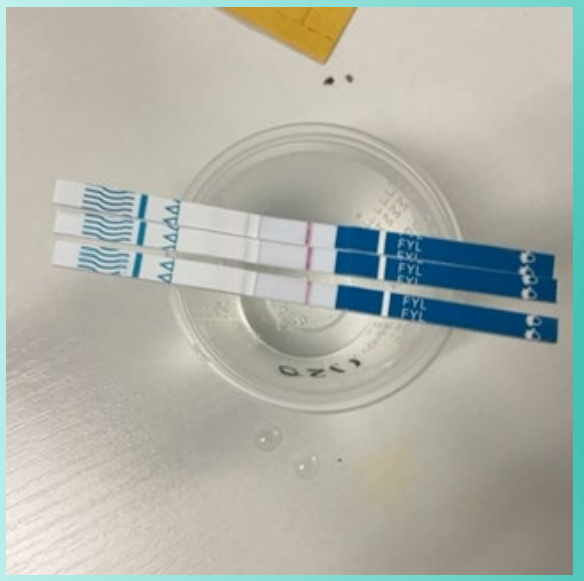
[redacted] (Initial)

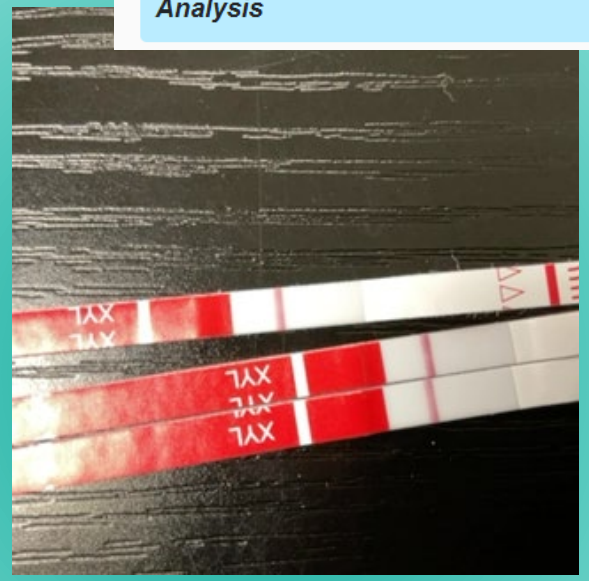
Location
Massachusetts [redacted]

Suspected as
Heroin, Fentanyl

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

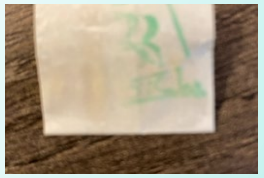
What is “normal”, what can be expected

Promotes dignity, awareness, self-care

Learning opportunity

Atypical samples

March 2023



Wk 1:
Not yet used

Wk 2:
Used, stronger than usual, developed abscesses

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

FTIR Results

Substance	Component
Xylazine	Major
Fentanyl	Major
Mannitol	Minor

Active Component	Result
Xylazine	5
Fentanyl	2
4-ANPP	1

FTIR Results

Substance	Component
Xylazine	Major
Fentanyl	Major
Mannitol	Minor

April 2023

Wk 5:
Multiple overdoses (nonfatal, fatal)

Active Component (Relative Ratio)	Result
Xylazine	8
Fentanyl	2
4-ANPP	1

FTIR Results

Substance	Component
Xylazine	Major
Fentanyl	Major
Mannitol	Unknown

- 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.

HST_0712 (Complete)

Location
Massachusetts [redacted]

Suspected as
Heroin

Completed Analysis ***This sample was confirmed by the laboratory to contain Xylazine (8), Fentanyl (2), 4-ANPP (1)***

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.**

Stages of Community Drug Checking Program Implementation

Early-on
(We want to get it!)

Picking the instrument and parallel testing approach

Determine level of uncertainty and reporting delay you are comfortable with

Budgeting: machine, operator, libraries, maintenance, immunoassays (e.g., FTS, benzo strips), confirmatory lab, materials, mailing/mileage

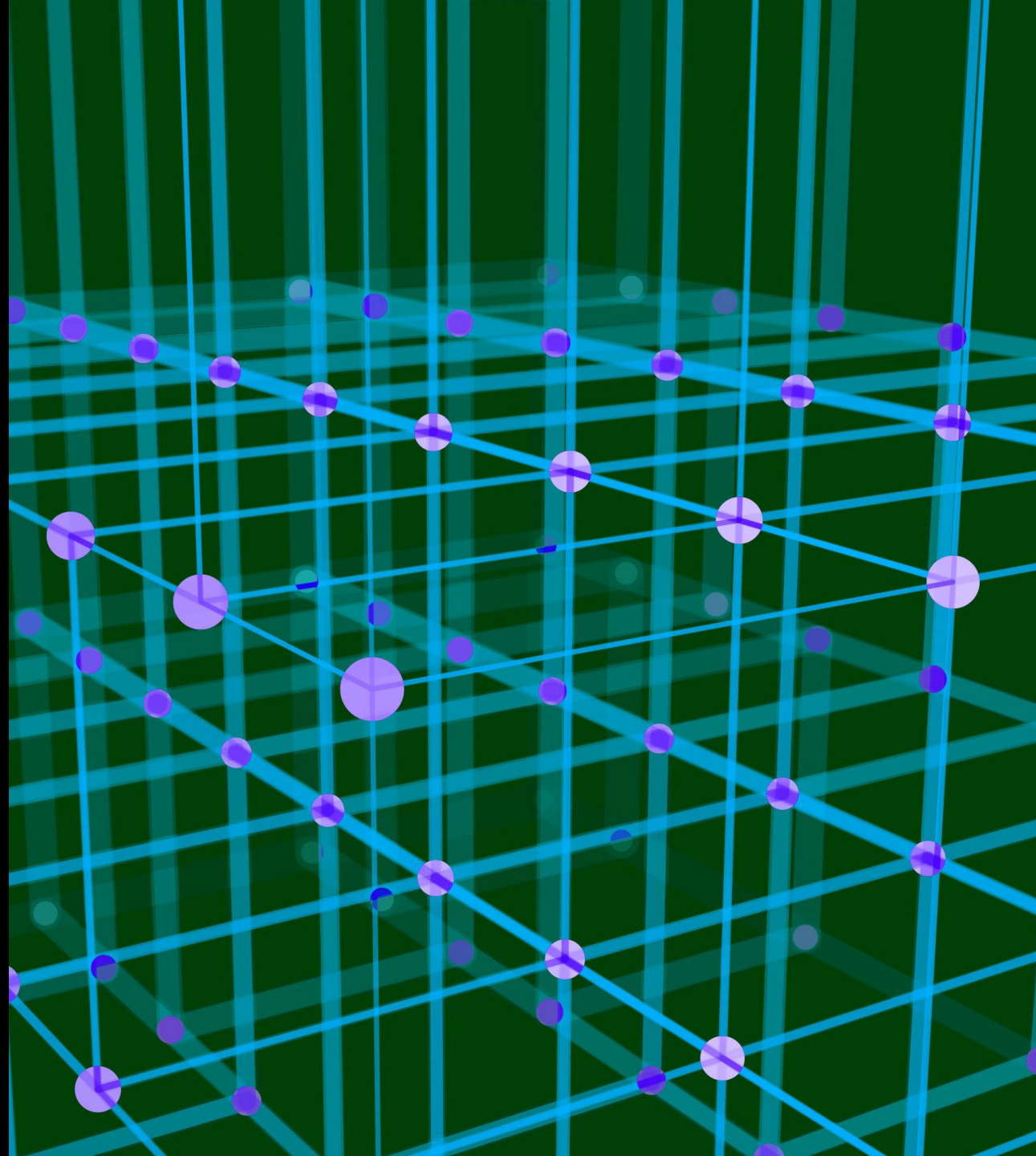
Determining operator, location, space and power sources

Legal considerations, site liabilities

Data storage, safety and access

How CDCF can help

- Connect to ORS
- Seek opportunities to help amplify and communicate with law enforcement and other officials about drug checking
- Provide consistent, valid (peer reviewed, evidence-based) scientific information
- Elevate and defer to harm reduction community partners
- Convene meetings to create space for discussion and exchange around drug checking, concerns, questions
- Continue to reinforce drug checking vs. drug testing
- Support systematic data collection, rigorous evaluation, and transparency



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, Drugsdata.org, our Advisory Board, 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

https://journals.lww.com/jphmp/Fulltext/2022/11001/Implementation_and_Uptake_of_the_Massachusetts.15.aspx

MADDS
Advisory Board

- 6 people, independent of MADDS
- People who use drugs, harm reduction providers, analytic chemist, drug suppliers
- Compensated, confidential, on-call
- Has own charter, coordinator
- Can task MADDS team for further study
- Meets regularly and as needed, reviews data and trends
- Recommends and reviews all alerts, bulletins
- Defines audience
- Points to next steps