Police-led Fentanyl Test Strip Distribution Program in Maine and Massachusetts: An Evaluation

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Abstract

Background: The increase of illicitly manufactured fentanyl in the drug supply and the lack of a reliable fentanyl detection method have led to a public health innovation: the community distribution and use of fentanyl test strips (FTS) to detect presence of fentanyl in drugs. The One2One project, based on a 2020 six-site pilot project, was a police-driven project spearheaded in Massachusetts and Maine in 2021 that consisted of police and community collaborators using FTS distribution as a low barrier tool to engage with people who use drugs and connect them to harm reduction supplies, services and referrals.

Methods: Implementation and evaluation of the program occurred over 8-months. Police

officers and program staff were trained on community use of FTS and were provided technical and logistical supports to encourage broad-scale local distribution of FTS kits to people who use drugs. The structure of the program encouraged departments to be innovative around FTS distribution and to use test strips as tools to support PWUDs with referrals, direct services and other harm reduction resources. The evaluation included site observations, interviews of staff and recipients, a community stakeholder survey, and analysis of administrative and demographic data to measure uptake and reach (engagement ratio and kit distribution impact rate) of the project as well as catalog implementation successes and challenges across participating police departments.

Results: Twenty-one police departments and their collaborators distributed 2,556 FTS kits and reported a combined 3,703 referrals or direct services, yielding an engagement ratio of 1.44 (one referral or service per FTS kit distributed) and a kit distribution impact rate (kits distributed per overdose mortality rate) of 4.37 conveying substantial public health reach of FTS in high overdose burden communities**.** Qualitative data analysis captured the nuances across police departments of FTS kit distribution approaches, engagement methodologies, and the shift in willingness to embrace harm reduction principles through police-led efforts.

Conclusion: FTS distribution through the One2One program exemplifies new and evolving shifts in public health and harm reduction policing roles and strategies. Further research should investigate how FTS distribution can be integrated across more geographies and implemented by other institutions.

Background

Since 2012, when it entered the drug supply in New England as a contaminant of heroin, illicitly manufactured fentanyl has spread throughout other US communities such that it is now present in nearly half of all drug overdose deaths in the US.[1–5] In New England, a region particularly hard-hit by these trends, illicit fentanyl is found both alone and as a contaminant of street heroin, and sometimes as a contaminant of cocaine, methamphetamine, and fake opioid pills.[1–3, 6,7] It is not uncommon for people who use drugs obtained on the street to mistake one drug for another, have a drug product be misrepresented, or unwittingly use a drug that is fentanyl contaminated. [8,9] The purity of substances and amount of fentanyl contaminants are unpredictable, thus contributing to fentanyl's prominent role in

drug-related morbidity and mortality.[10–12] These factors combined have led to a dangerously high risk of overdose among people who use drugs (PWUDs); in a rapid assessment conducted between 2017 and 2019 with 469 PWUDs in the state of Massachusetts, 36.9% reported a past-year nonfatal overdose event[13].

The lack of a reliable fentanyl detection method has led to a public health innovation: harm reduction programs have repurposed commercially available fentanyl test strips (FTS) before use.[14] As of April 2021, federal funds can be used to purchase FTS.[15] While research on the effectiveness of FTS as a drug overdose tool is nascent, one study found that clients who tested their drugs prior to consumption and got a positive result were 10 times more likely to reduce their dose; if they reduced their dose, they were 25% less likely to overdose.[15] Several other studies across the United States report similar behavior changes in PWUD following FTS use. FTS have limitations; while it detects the presence of fentanyl, it cannot determine the quantity (i.e., whether it is a trace amount or a possibly fatal dose), and it does not detect all analogs or other contaminants in street drugs.

A second innovation is the emergence of a culture of policing in some U.S. communities that is increasingly oriented towards problem-solving or service-related responses, often in combination with local community-based organizations.[17,18] Witnessing unstoppable increases in drug overdoses, some police departments have abandoned, shifted, or expanded their traditional approaches in encounters with PWUD, realizing 'they could not arrest their way out of the problem'.[19] In general, police-driven approaches exploit the unique opportunity for intervening at a 'teachable moment' in encounters with PWUD, after an overdose or at a time when an arrest might typically occur. With these programs, selected officers are trained to engage with PWUDs about referrals to treatment or other community services.[20–23] The present study presents findings from the One2One project, a police-driven program spearheaded in Massachusetts and Maine in 2021. The Police-Assisted Addiction and Recovery Initiative (PAARI) implemented the project in collaboration with the Brandeis University's Opioid Policy Research Center that also conducted a formative mixed-methods evaluation.

Methods

Setting

One2One took place in two US states with differing histories of public health and public safety responses to drug overdoses, Maine and Massachusetts. In Maine, fentanyl was present in about 67% of drug overdose deaths in 2020.[24] Maine launched a statewide public health initiative in 2021 called OPTIONS (Overdose Prevention Through Intensive Outreach Naloxone and Safety).[25] Under the OPTIONS initiative, the state contracted for recovery liaisons in each county; part of their work was to be a resource to local law enforcement.

In Massachusetts, drug overdose deaths rose sharply between 2012 and 2016 as illicit fentanyl entered the drug supply. In 2020, the proportion of overdose deaths with fentanyl present increased to 92%.[26] The

spike in overdose deaths led to the introduction of the nation's first police-directed post-overdose outreach response models as well as diversion programs where the police department served as an entry point into drug treatment.[23] Massachusetts also has been a U.S. innovator in funding community-based harm reduction programs, such as overdose education and naloxone distribution and, more recently and fentanyl-specific, a pilot project on FTS distribution by police departments. The pilot study demonstrated the feasibility of enrolling police departments to distribute FTS kits and it found that police departments and their collaborators distributed over 300 FTS kits (kits contain 3 test strips) and provided nearly 300 referrals.[27] This approximate 1-to-1 ratio of kits to referrals became the namesake and motivation for the current One2One project. The logic model of public safety officers providing FTS to PWUD, as articulated in the preliminary study, is that FTS distribution to people in the community improves their awareness of fentanyl risks and facilitates engagement in programming and extends "warm hand-offs" to treatment and recovery services, participation in which ultimately reduces overdose in the community. The goal of this study was to test this logic model by replicating the previous pilot and expanding it to more geographically, racially, and ethnically diverse sites in two states over a one-year implementation and evaluation period.

The One2One Intervention

The One2One approach had aims similar to harm reduction policing: "where police seek to build the capacity of systems to address needs while validating the police mission to protect public and individual safety, security, order, and rights".[28] In One2One, police and collaborators used FTS distribution as a low barrier tool to engage with PWUDs. Implementation activities were led by PAARI, a nonprofit headquartered in Boston, Massachusetts that works nationwide to provide training, support, and resources regarding non-arrest pathways to treatment and recovery with a board of directors comprised of former police chiefs and recovery support experts.

PAARI emailed all police departments in Massachusetts and Maine and invited participation in the study. One2One had three components that occurred January 1 to November 30, 2021: (1) development of FTS materials and capacity-building with participating departments, (2) local police department activities to implement new or revised procedures and community partnerships to distribute an initial allotment of 50 FTS kits (150 strips); and (3) monitoring and evaluation activities. Participating departments were offered incentives of $500 to $1,000 to offset costs of personnel time in monitoring and evaluation activities.

Capacity-building was comprised of training on FTS use and kit distribution strategies, delivery of prepackaged kits, and establishment of a learning collaborative among all participants comprised of quarterly convenings and monthly drop-in sessions. Departments were trained by PAARI on FTS kit use through webinar and videos that instructed users to place the test strip in a small container, add 10 milliliters of water (50 ml if testing methamphetamine) to small amounts (e.g., half of a grain of rice) or even remnant drug, and dip the strip in the mixture for 15 seconds and wait 5 minutes to read the result.[29] The FTS is activated and shows one line when any quantity of fentanyl is detected and will show two lines if not detected. Each FTS kit included 3 test strips, each with a 2 x 3-inch instruction card on its use

(English one side/Spanish one side), and preprinted contact cards with phone numbers for the outreach worker at the department, all in a small resealable plastic bag.

Evaluation Design

The purpose of the evaluation was to measure outcomes consistent with the One2One logic model and document implementation successes and challenges. For evaluation purposes, we developed indicators that reflected participation in training activities and police participant achievements, as well as two principal outcome measures that reflected One2One's logic model: a kit distribution impact rate and an engagement ratio. We calculated the outcome "kit distribution rate" as the number of FTS kits distributed divided by the community's fatal opioid overdose rate per 100,000 population in 2021 (Computed by evaluators for towns in Massachusetts and counties in Maine).[26,30,31]) This outcome reflected the uptake and public health impact of kit distribution to highly affected communities. The "Engagement Ratio" was calculated as the sum of referrals and direct services to kit recipients divided by the number of kits distributed, and reflected the productivity of the engagement. We calculated engagement ratios and kit distribution rates, plotted the outcomes pairs on a graph, and then classified sites into outcome quadrants as high versus low classification relative to all participating sites. A high engagement ratio was defined as 0.91–4.15 engagements per kit distributed; high kit distribution was defined as 3.73–15.36 kits per fatal overdose rate. Participation process measures included attendance at project activities, counts of technical assistance requests, and additional FTS kit requests beyond the initial allotment. Community awareness was assessed with a short stakeholder survey. We also obtained and created contextual variables. Specifically, we classified sites as racially or ethnically diverse if they exceeded the median proportion among sites on two of three population indicators: percent Black (median = 18.3), percent Hispanic (median = 6,7) and the percent two or more racial/ethnic groups (median = 3.2). We classified population size as urban (> 50,000), metro (< 50,000 but within large metro area), and non-metro/rural (less than 25,000 and not within large metro area). Finally, we classified overdose rates (defined as fatal opioid overdoses per 100,000 population in 2021) as very high (50–69), high (40–49), average (30–39) or lower (11–29) relative to all participating sites.

While monthly monitoring to obtain indicator data occurred at all sites, more in-depth evaluation involving semi-structured interviews, field observations, and site visits occurred only at 12 selected sites. In-depth evaluation sites were selected to ensure a range-maximizing sample and representation across site characteristics: 1) balance on Maine and Massachusetts and rural and urban geographic areas; and 2) diversity of police community engagement history and models (described elsewhere in the paper); and 3) diversity in prior experience with PAARI. Brandeis University's Institutional Review Board approved the study protocol.

Monthly monitoring

Each department reported the total number of FTS kits distributed and the total number of referrals or direct services on a monthly basis from March to October 2021 via an online survey. Respondents were

asked for comments on successes and barriers or challenges. Evaluation departments reported additional information on distribution strategy/method, types of recipients, and types of referrals and direct services. Response rates by month ranged from 71–95%, with 17 of 21 departments submitting a report each month. evaluators computed the total number of kits distributed per 100,000 population, per fatal overdose (obtained from state public health fatality data), and overdose rate (computed by team from state data).[30–32] Participation statistics included attendance at sessions and requests for FTS kits classified as top-, middle-, and bottom-tier relative to other participants.

Community stakeholder survey

A short survey was administered to stakeholders not involved in implementation of the One2One program in project-hosting communities. Six prompts asked open-ended questions about the program and posed nine Likert scale agreement items on the respondents' assessment of police department involvement with and attitudes towards PWUD adapted from the original pilot study.

Interview and Site Visit Qualitative data

In-depth, semi-structured interviews were conducted with program staff and affiliates between April 2021 and October 2021. Additionally, participant observation was conducted at staff meetings, program offices, and during active outreach when research staff accompanied program staff.

Program staff participants were recruited for qualitative interviews using purposive and snowball sampling strategies so that our sample included a diverse range of occupations including police officers, social workers, recovery coaches, and harm reduction specialists. All participants provided verbal consent. All interviews followed a semi-structured interview guide which included the following *a priori* domains: program history and mission; approach to contacting recipients; partner organizations; resources offered by staff; program goals; challenges/barriers to implementation. In addition, 2 site visits (video or in-person) were conducted at each evaluation site to observe first-hand the day-to-day operations including staff meetings and street outreach (n = 24 visits).

Qualitative Data Analysis

Transcripts and detailed field notes were read and free coded using 'memoing' techniques.[33] An initial set of narratives and themes were identified, after independently reviewing interview transcripts the research team refined initial themes, and axial coding was used to elaborate the views of program staff in different roles. Alongside this, Atlas.ti was used to create a deductive codebook using a priori domains from a semi-structured interview guide.

Results

Characteristics of participating projects

Seven police departments in Maine and 14 departments in Massachusetts returned applications between January and February 2021; all 21were accepted as participants and 12 were selected for in-depth evaluation. The participating communities had generally high fatal overdose rates, ranging from 11 to 69 per 100,000 population in Massachusetts sites and 22 to 40 per 100,000 population in Maine sites. The median population was 23,303 with four communities considered urban that had over 50,000 population, and including smaller non-metro communities with rural areas, concentrated in Maine. In four communities the majority of residents was Hispanic, Black or people of color and another five communities had substantial racial/ethnic diversity.

Implementation Outcomes

Overall, participating projects distributed 2,556 FTS kits and reported a combined 3,703 referrals or direct services, yielding an engagement ratio of 1.44 (referrals or services per kit distributed). The overall kits per overdose rate was 4.37. Both outcomes exhibited a high degree of variability.

To visualize variability, Fig. 1 displays a scatterplot of the outcomes for each site. Three sites exhibited high engagement ratios and high kit distribution rates (Quadrant 1), seven sites had high kit distribution rates and low engagement ratios (Quadrant 2), four sites had low kit distribution rates and high engagement ratios (Quadrant 3), and the remaining sites (n = 7) were classified as low distribution and engagement. The two outcomes were modestly, positively correlated (r = .38).

Table 1 provides contextual information for each site organized by outcome quadrant. Characteristics were heterogeneous within each quadrant with one exception: only Massachusetts sites exhibited high engagement and high kit distribution (Quadrant 1). Two of the three Quadrant 1 sites were classified as communities of diverse race/ethnicity composition. Quadrant 1 included a range of urbanicity and overdose burden.

Table 1
Association of Community Characteristics and Outcome Quadrants

Outcome Quadrant	Racial/ethnic diversity	Population size	Fatal overdose rate	State
1 High Distribution High Engagement				
	Less diverse	Non-metro/rural	Low	Mass.
	More diverse	Metro	Very High	Mass.
	More diverse	Urban	Very High	Mass.
2 High Distribution Low Engagement				
	Less diverse	Non-metro/rural	Average	Maine
	More diverse	Urban	High	Mass.
	Less diverse	Metro	Average	Maine
	More diverse	Urban	High	Mass.
	Less diverse	Metro	Average	Mass.
	Less diverse	Non-metro/rural	High	Maine
	Less diverse	Non-metro/rural	Lower	Mass.
3 Low Engagement High Distribution				
	Less diverse	Non-metro/rural	Average	Mass.
	Less diverse	Metro	Average	Mass.
	Less diverse	Non-metro/rural	Average	Maine
	More diverse	Metro	Very High	Mass.
4 Low Distribution Low Engagement				
	Less diverse	Non-metro/rural	Average	Maine
	More diverse	Metro	Lower	Mass.
	More diverse	Urban	High	Mass.

Notes:

Classifications were defined relative to the characteristics of all participating sites. “More Diverse” defined as above the median percentage on at least two population indicators: disproportionately Hispanic, Black, or multiethnicity. Range in characteristics of more diverse sites were: Hispanic 18.3–81.1%; Black 6.7–14.4%; multiethnicity 5.4–36.4%. Population size defined as non-metro/rural = less than 25,000 population and not inside large metro area; metro = inside large metro area and population under 50,000; urban = population > 50,000. Fatal overdose rate (2019) defined as overdoses per 100,000 population. Lower = 11–29, average = 30–39, high = 40–49, very high = 50–69. Quadrants were defined by high engagement ratio (.91-4.15), low engagement ratio (.08-.84), high kit distribution rate (3.73–15.36) and low kit distribution rate (.19-3.58).

Outcome Quadrant	Racial/ethnic diversity	Population size	Fatal overdose rate	State
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	Less diverse	Non-metro/rural	Average	Mass.
	More diverse	Non-metro/rural	Very High	Mass.
	More diverse	Non-metro/rural	Average	Maine
Notes:				
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Each individual site is plotted (blue dot) based on their engagement ratio (number of engagements per kit distributed) and kit distribution rate (kits distributed per (community fatal overdoses per 100,000 population)). Quadrants were defined by high engagement ratio (.91–4.15), low engagement ratio (.08 to .84), high kit distribution rate (3.73 to 15.36) and low kit distribution rate (.19 to 3.58).

Site participation in training and capacity building

PAARI’s capacity building activities facilitated sharing of information on distribution strategies among participants in a learning community but missed opportunities to address motivational conversations with PWUD. PAARI took the perspective of police department personnel in communication, and emphasized having a strong committed advocate (coordinator), typically not the Police Chief. Participants were police or recovery advocates of a community service unit in the department. Police participants were encouraged to integrate One2One activities into existing programming. Training and collaborative discussions were principally about FTS distribution strategies beyond post-overdose sessions. However, through interviews, observation, and analysis of training recordings, not discussed were specific tools, approaches, or materials to guide officer components of effective, motivational conversations with PWUD. Some training participants reported having had exposure to content about motivational discussions with PWUD through prior training, but this was rare.

Participation outcomes are displayed on Table 2. There was relatively high participation in training and technical assistance for programmatic aspects across states and evaluation/monitoring participation type, although department participation was uneven. The departments who requested the maximum number of kits (300 or more, top tier for volume) demonstrated ongoing commitment: they attended all convenings, had numerous conversations with PAARI staff, and two were regular attendees at the monthly technical assistance drop-ins.

Table 2
Police department participation in training activities

State	Convening Attendance (4 sessions)	Drop in attendance (6 sessions)	# of TA Requests	Lead Distributor	Kits requested
ME*	4	6	8	Recovery Liaison	450
MA	4	1	4	Community Partner	450
ME	4	3	7	Clinician	450
MA*	4	0	13	Clinician /Outreach Team	400
ME*	4	5	9	PAARI VISTA	325
MA *	3	1	12	Outreach Team	300
MA *	3	0	0	Officer	250
MA	2	0	1	Community Partner	250
MA*	2	1	5	Community Specialist	200
MA*	2	0	0	Officer	150
MA *	2	0	2	Officer	150
MA	3	1	5	Community Partner	150
ME	3	1	1	Clinician	150
MA*	2	0	6	Not applicable	100
MA*	1	2	0	Officer	100
ME*	2	1	11	Chief/Clinician	100
ME*	1	0	1	Recovery Liaison	50
MA	1	0	1	Officer	50
MA	1	1	1	Officer	50
MA	2	0	0	Officer	50
ME	2	5	3	Clinician	50

Note: * indicates site participated in extensive qualitative evaluation

Distribution and Engagement Strategies Used by Sites

There was substantial implementation variation in kit distribution and engagement work including the strategies used. Table 3 summarizes activities of police departments participating in the evaluation regarding strategies to distribute kits, number of direct services by type, and number of referrals by type. Eleven of 12 departments employed street outreach approaches, and 36% of kits were distributed by street outreach. Nine departments relied on post overdose outreach programming with 18% of kits distributed by this method. Less commonly used were community partner outreach, community-based events, or FTS kit distribution incorporated into existing outreach activities.

Table 3
FTS kit distribution strategies, types of Direct Services and Referrals, Departments (Depts) participating in extensive evaluation (n = 12)

	Massachusetts site projects (n = 8)			**Maine site projects (n = 4)**		
Project Distribution Method	No. Depts	No. Kits distributed	% of kits distributed	No. Depts	No Kits distributed	% of kits distributed
Post overdose outreach sessions	7	286	23.9	2	23	4.6
Street outreach	7	428	35.8	4	181	36.3
Other individual outreach sessions	5	115	9.6	4	123	24.7
Other group for distribution	5	160	13.4	2	80	16.0
A group or community event	2	84	7.0	2	62	12.4
Other manners*	7	123	10.3	4	29	5.8
Type of Direct Service	No. Depts	No. events		No. Depts	No. events	
Transportation to health care	5	52		2	14	
Transportation for other purpose	3	38		2	2	
Naloxone/ overdose materials	7	493		4	63	
Recovery coaching	4	499		2	39	
Other type of service	7	109		2	16	
Type of Referral						
Substance use services	6	418		4	60	
Housing assistance	4	176		3	39	
Employment assistance	2	21		3	17	
Recovery coach	5	514		3	56	

*Other distribution manners reported were: Clients at motel shelter, first approach, overdose, another hub member, booking room at arrest, syringe exchange partner

	Massachusetts site projects (n = 8)		Maine site projects (n = 4)	
Food	6	158	3	17
Mental health services	5	213	4	56
Other type of referral	1	29	1	31
*Other distribution manners reported were: Clients at motel shelter, first approach, overdose, another hub member, booking room at arrest, syringe exchange partner				

There was also variation in the type of direct services and referrals provided through kit distribution interaction among these departments: the majority (n = 11) augmented FTS kit provision with co-provision of naloxone and overdose prevention materials (n = 556 kits); seven offered transportation to health care settings (e.g., emergency departments); and six had recovery coaches on staff to provide support (n = 538). The number of direct services provided exceeded the total number of referrals to other services, reflecting increased willingness and growing capacity of the police departments to more immediately respond to community behavioral health needs. Most common among the referral services was substance use services (10 sites, 478 referrals), and referral to recovery coaching (8 sites, 570 referrals). Less frequently referrals were made to mental health services, housing resources, or other types of services (Table 3). Twelve communities with under 118 distributed kits either had few local programs to refer people to, no or limited direct services to offer (i.e., lacked a recovery coach), or did not have state-funded naloxone or other harm reduction or basic needs supplies to distribute, thereby affecting their program's engagement ratio (< 1.0).

Community Perceptions of Police Department Initiatives

Thirteen responses to the community stakeholder survey were received from respondents in seven of the 12 evaluation communities with two surveys not associated with a named intervention-receiving community. When asked about their awareness of the police department's involvement in distributing test strips to community members to detect fentanyl in drugs in their possession, 8 of 13 community agency respondents reported little or no awareness.

In general, respondents indicated favorable responses toward police department activities or approaches in several aspects related to involvement with community members who used drugs or were affected by drug overdoses. For instance, 11 of 13 agreed or strongly agreed with the statement, "In my opinion, our police officers are concerned with the wellbeing of PWUD in the community", and 10 of 13 agreed or strongly agreed with the statement "To my knowledge, the police department is focusing on implementing non-arrest pathways for PWUD." However, 9 of 13 respondents strongly agreed or agreed with statements that PWUDs and their family members and friends would be concerned that an arrest would occur because of drug use. Further, the majority (8 of 13) did not perceive the department as a potential resource to prevent overdose (see Appendix).

Interview Findings

A total of 27 implementation providers participated in an interview (public health/social service partner = 11, police officer = 9, recovery coach = 5, harm reduction specialist = 2). Analysis of qualitative interviews produced 4 important findings: (1) FTS kira as engagement tools (2) the novel partnerships and team structures that emerged from participation in the One2One program, (3) varying definitions of and implementation of harm reduction principles, and (4) law enforcement champions and program leadership. We discuss these themes in order below. See Table 4 for a summary of qualitative findings.

Table 4
Summary of Qualitative Themes

1. Fentanyl test strips as engagement tools **Fentanyl test strips serve as engagement tools that connect community members to One2One staff**
2. Novel Partnerships Partnerships between law enforcement and community stakeholders facilitate successful test strip distribution
3. Varying definitions of harm reduction Program staff vary in their definition of harm reduction and community partners sometimes take on the responsibility of educating law enforcement partners about harm reduction.
4. Law enforcement champions and leaders Particularly in police-led One2One sites, success depends on individual champions who work to institutionalize this work.

Fentanyl Test Strips as an Engagement Tool

Law enforcement and community partners emphasized that FTS were important engagement tools for beginning a conversation with PWUD and may in fact lead to deeper connections to services. Program staff emphasized that conversations about FTS can make an initial encounter less intimidating, particularly when there is a marked presence of law enforcement (via uniform or a cruiser). One law enforcement officer conveyed:

“The test strip really is for us, it’s kind of like almost an engagement tool. That’s what we really use it as. Kind of like an icebreaker, if you will. Like, “Hey. I’m [NAME] this is what I’m doing. Hey. Would you like this to kind of help you out?” And then we just go from there.”

A recovery coach echoed this orientation:

What I do like about them is that they are an engagement tool. I think anything that tells somebody like we don't want you to die, you know, you're worth, you know, testing your drugs to make sure you're not

gonna die and we care, I think that's an important piece, and then it also kinda opens up conversation for families.
One program staff emphasized that a marker of the success of FTS as an intervention was the number of calls they received asking for additional test kits from community members, as one recovery coach shared:

I think another measure of success is those individuals who called and asked for yet another kit. You know, "Can you bring more? Can you stop by and drop off more?" Or, "Can I come and pick up more?" Oh, those individuals who've said, "Oh, so, I have a couple, and I shared them with someone. I hope that's okay." And of course, we say, "Absolutely. It's okay. Share them and share them some more.
FTS open up a possibility for, at the very least, a face-to-face conversation and may even provide a pathway to other forms of harm reduction or service provision. A recovery coach summarized the potential of FTS thusly:

I think, like, as we go further, I feel like we're going to find more and more benefits, you know? Or more ways to approach people and more ways to, like, spread the word that it's [recovery] possible. 'Cause I think there's still a lot of people that are like, ‘Wait, you can test for this?’ You know, like, and I think now we're in a stage, too, where people are realizing fentanyl is in a lot more than just heroin, that I think in the next year or two, we'll probably see a lot more, like, non-heroin users [open to] testing.
FTS served as a bridge that connected community members, program staff, and potential opportunities for creating deeper connections, beyond the initial encounter with test strips.

Novel Partnerships

Across programs, police department program interviewees expressed largely positive feelings about partnerships that emerged across professional or organizational lines. Specifically, partnering with diverse agencies allowed teams to reach more participants and broaden the range of services and locations where supplies may be available to get test kits to PWUD or their social networks.. For example, an outreach specialist who often distributed kits with a law enforcement partner shared about FTS distribution and refining outreach to a new location:

“So [on] post-overdose [outreach], that's one way, but I've seen, you know, throughout like the year that we've had fentanyl test strips, the best route for [town name] is street outreach. So lately, we've been targeting the downtown bus terminal area to help people there because there's been an influx of people getting to the bus terminal and staying there. So, we're... we've been talking to them. And that is how we've been distributing our fentanyl test strips lately, is doing that particular outreach”.
Beyond developing strategies for best reaching populations at risk, interviewees also stated that these partnerships with community organizations allowed them to cultivate valuable relationships across different organizational lines.

Harm Reduction Approaches

Police and community partners shared different perspectives on what harm reduction *is* and how it related to concrete approaches to assisting individuals with substance use disorder. Law enforcement partners were not always as aware of, or sympathetic to, principles of harm reduction and sometimes community partners took on the role of educating law enforcement partners about harm reduction practices. For example, one harm reduction specialist shared:

I think for police there's maybe a lack of education or training sometimes, and there are negative attitudes for individual officers and sergeants. So, there's definitely personal opinions in there. And then we have some departments that won't even carry NARCAN (naloxone) themselves to use on themselves or each other.

In other cases, public health partners recounted how previously they were brought in to train officers in principles of harm reduction. A harm reduction specialist recalled that:

You know, in the beginning, you know, I trained officers about the post-overdose team and the LEAD [Law Enforcement Assisted Diversion] teams. I talk about harm reduction. So they're very… very surprised when they know that we're not trying to force somebody into recovery, that we need to meet them where they're at. And so we need to reduce their behaviors for them not fatally overdosing, or overdosing, in general.

Community partners did express that their law enforcement officers were often willing to learn about harm reduction principles but still held entrenched beliefs about arresting PWUD to protect their safety:

Most of my interactions have been really positive. They will openly say that, 'we would rather not arrest people for using substances or possession if there are other options.' I think I have definitely heard the attitude that sometimes it's the safest thing for the individual to be arrested, and I can definitely see that logic. While I'm not sure I agree, sometimes I guess I can see the logic.

A law enforcement officer reflected on their own previous understandings of harm reduction as well as the learning they experienced working with non-law enforcement partners:

Yes, so I had to have a little bit additional education regarding some harm reduction, you know, methods, years ago. Probably heard from, you know, community leaders, "Oh my god, harm reduction is needle exchange, we don't want needle exchange." And the stigma-based statements that were made regarding needle exchange. "It's just gonna bring in more use" and, you know, those were the comments that I had heard and been familiar with. So needed to reeducate myself.

Across programs, there was a lack of institutionalized training to introduce law enforcement officers to harm reduction approaches and many must learn "on the fly" or from their community partners. We found that law enforcement officers often used the language of "engagement tool" rather than "harm reduction tool" when referring to FTS as a way to generate greater buy-in. One officer said:

Like I said, it's [FTS kits] kind of an engagement tool. When you talk about someone with addiction, especially if you're a police officer, you're saying, hey, I'm not talking about arresting you or you quittin' drugs or anything else. But it's sort of a way like, "hey, I'm not judging you. But I think we can have an open conversation about what's going on right here.

In short, law enforcement officers tended to focus on engaging test kit recipients in order to make connections to treatment or recovery services they know, rather than viewing FTS through a harm reduction lens, largely consistent with the language of the PAARI orientation and training sessions.

Law Enforcement Champions and Program Leadership

Particularly in One2One programs led by law enforcement, we found that an initial program “champion” was a necessary element for implementation success. This individual not only took on the programmatic work of the project, but also convinced other peer law enforcement officers of the value of incorporating this kind of work into their policing. The success of the champion depended, in part, on how open officers were to accepting non-arrest strategies to interacting with PWUD and knowing who in their department might be more receptive to these approaches. One program leader explained:

So I think the family services unit has definitely welcomed this new idea [FTS distribution]. Like I said, we have a little bit more training, a little bit more well versed in these things. I'd say for the patrol staff, the regular uniform division, they're like any other department. There's going to be guys and girls that accept it right off the bat, you know, or there are guys and gals that don't like change.

During a field site visit a police chief recalled that, like the FTS program implementation experience, he initially was met with resistance to incorporating approaches like arrest diversion in the department’s interactions with PWUD. He noted that while some of his colleagues have softened to the idea, there remains resistance from a number of officers and he explained that it was a slow process to warm other officers to the idea of not arresting individuals who use illicit drugs. A clinician working with the law enforcement team emphasized that “...police tend to listen” to other police officers.

Another lieutenant officer recounted how, when he first began incorporating harm reduction principles into his police work, he was met with resistance from fellow officers when he sought to implement FTS distribution within the department:

I know some officers kind of roll their eyes at, like, you know, “give 'em Narcan. Oh give 'em these test strips, like, you know, you’re really keeping these people alive?

He continued:

“I think if you talk to some of the older officers they’re like, ‘Ah harm reduction [MAKES FACE],’ even at these meetings, it’s funny ‘cause everyone kind of self-segregates to an enforcement side of the table and, you know, a counseling side of the table.”

Repeated past exposure to similar harm reduction policing concepts and activities made the champion’s job implementing the One2One program within their department more normed and expected, even if not universally accepted by staff.

Discussions

Through participation in the One2One program, police departments implemented community outreach and non-arrest approaches when engaging in conversations with PWUD and provided the kit recipient a

referral to services or provided direct services. Over the study period, departments and their collaborators distributed 2,556 FTS kits and reported a combined 3,703 referrals or direct services, yielding an engagement ratio of 1.44 (referrals or services per kit distributed) and a kit distribution impact rate of 4.37 conveying substantial public health reach of FTS in high overdose burden communities. When classified by their engagement ratio and kit distribution impact rate, most sites exhibited either high distribution or high engagement, with three sites achieving both high distribution and high engagement. These high performers relied on multiple distribution strategies, had non-police community workers (recovery coaches, volunteers), served communities host to at least some level of local treatment or service availability, or engaged in regular outreach with other local community agencies serving PWUD. They were otherwise not distinguished by population diversity, size, or community fatal overdose rate. These findings suggest that FTS distribution through public safety partners is one strategy that is flexible and potentially applicable to many jurisdictions and municipalities. However, the overarching logic model of One2One may need to be changed to address the resource needs and training required at participating departments so that they can exhibit strengths on both outcome indicators: distribution reach and engagement.

Other keys to successful implementation were more relational in nature and could be cultivated. Site leaders and police department champions were crucial to the success of this intervention aimed at keeping PWUD safe. Without the dedicated work of early adopters, particularly those who have been involved in this type of work in other capacities, it would be difficult to implement these kinds of programs within police departments. Strong partnerships between community stakeholders and law enforcement agencies facilitated successful FTS kit distribution in communities. These findings reinforce conclusions from previous research that demonstrates high-level leadership in police departments (such as the Chief of police) and strong community partnerships are key to facilitating public health and law enforcement partnerships addressing overdose.[34]

The One2One intervention necessitated police department involvement more consistent with harm reduction principles. Like other community partner programming, departments most often reported using ‘street-based outreach’ to places and people at risk of fentanyl exposure and overdose to distribute FTS kits. This ‘proactive’ harm reduction approach differed from other police-engaged models that tended to be more ‘reactive’, often occurring in response to a non-fatal overdose.[17] Further, One2One appeared to attract volunteers among departments with a champion officer who valued the opportunity to enhance his/her role as a caring, compassionate ‘social problem worker’,[35] rather than a coercive or punitive law enforcement officer. The most profound example of harm reduction impact evolved from a police department’s formal inquiry to their county’s District Attorney, seeking clarification of their legal interpretation of FTS as drug paraphernalia and requesting support for the One2One program. The letter in reply not only clarified the DA’s interpretation of the law, but also provided a public document from a state leader in support of the possession and distribution of FTS for state residents. The momentum behind this effort and concerted effort by community partners across the state led to Maine’s 2021 passage of a law decriminalizing drug checking equipment like FTS and encouraging their distribution.

The effect and impact of the initial department's inquiry is now part of the history of community drug checking in the state and shapes an institutional culture of change. Thus, One2One further moved police department activity away from a public safety intervention into the sphere of public health and harm reduction. Because FTS distribution was so novel in 2021, police were the only source of this public health tool in most communities at the time of the One2One evaluation.

Where successful, One2One exemplified a shift in framework for one unit of a police department: officers in these units demonstrated a harm reduction mindset and perceived their role as a community problem-solver rather than as an enforcer. Specifically, leadership and implementing departments opted to see FTS possession as preventive and self-protective, not as drug paraphernalia. The decision to view and actively interpret FTS as such and to publicly teach about and distribute FTS symbolizes a dramatic change in public safety work. It signals to those in the community at greatest risk of drug related harm and over-criminalization that their lives are important and that possession and use of these tools are tolerated and good.

In this study, these models were adjunctive to core police work, they did not replace the use of punitive or coercive approaches by other units in the police department. Further research is needed on the circumstances in which these harm reduction policing models are associated with reduced reliance on arrest of PWUDs, and whether they will remain successful when they co-exist with ongoing arrests and traditional police work by other officers.

Data from this study further suggests that harm reduction policing was adopted by some departments in racially and ethnicity diverse communities. Thus, this approach, if equitably used in these communities, may be one strategy to have a more equitable response to drug overdose in minoritized communities. Additional research is warranted to examine person-level data to see if departments that adopt harm-reduction strategies are implementing them universally within the community or only selectively, e.g., primarily in white neighborhoods.

The intervention and this study had several limitations. First, most participating departments had some prior experience with post overdose outreach or another opioid reduction program, and success with FTS distribution as an engagement tool may be different in communities without this infrastructure. Second, the number of respondents from the perspectives of kit recipients and community outside stakeholders was small and may not be representative. Third, we did study whether recipients changed their behavior in response to discovery of a fentanyl-contaminated sample. Finally, distribution of FTS does not increase the treatment options available to PWUDs, and nearly all US communities have shortage of treatment providers.[36] In summary, FTS distribution through One2One exemplifies new and evolving shifts in public health and harm reduction policing strategies, to save lives and "reimage" or "reinvent" police work.[28,37–39]

Conclusion

One2One is an example of a change in police work motivated in part to respond to the rise in fatal overdoses, one of the community's greatest public health needs in the US. We identified implementation successes and challenges of FTS distribution and engagement. Police implementers and community partners who participated largely had a favorable response to this form of harm reduction policing. While acknowledging that FTS distribution is an unconventional police initiative, these participants talked about sustaining the initiative because they perceived benefit from FTS distribution.

Abbreviations

FTS
Fentanyl Test Strips are used to detect the presence of fentanyl in an illicit substance
PAARI
Police Assisted Addiction Recovery Initiative is a non-profit civic organization
PWUDs
People who use drugs

Declarations

Ethics approval and consent to participate

All procedures were reviewed and approved by the Brandeis University institutional review board.

Consent for publication

Not applicable.

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Author Contributions

Study conception (TCG, VLM, RO), project implementation (JO, VLM); evaluation design (TCG, MJL, VLM, JS, BO); data collection & analysis (MJL, JS, BO, TN, EC), interpretation of data (TCG, VLM, MJL, JS, BO, TN, EC), initial draft (MJL, JS, BO, TN, EC), substantial revisions (MJL, JS, BO, TN, EC, VLM, TCG).

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Figures

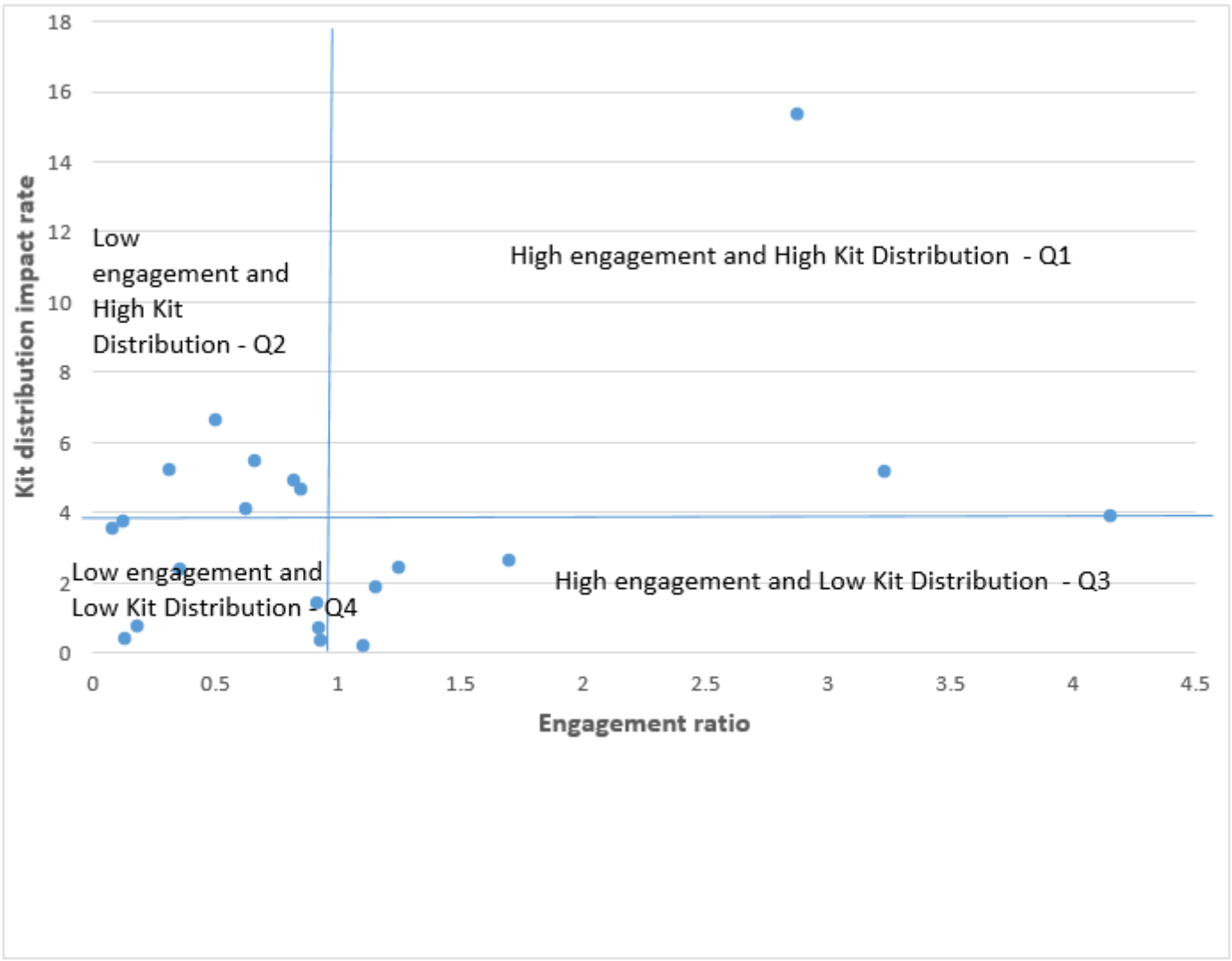

Figure 1

Scatterplot of 21 21 participating sites by engagement ratio and kit distribution impact rate