PSI's Evaluation Project on Vermont's Law Enforcement Drug Disposal Pilot

For Vermont Department of Health Division of Alcohol and Drug Abuse Programs

FINAL REPORT

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The Product Stewardship Institute

The Product Stewardship Institute (PSI) is a national, membership-based nonprofit committed to reducing the health, safety, and environmental impacts of consumer products across their lifecycle with a strong focus on sustainable end-of-life management. Headquartered in Boston, Mass., we take a unique product stewardship approach to solving waste management problems by encouraging product design changes and mediating stakeholder dialogues. . With members from 47 state environmental agencies and hundreds of local governments, and 120 corporate, academic, non-U.S. government, and organizational partners, we work to design, implement, evaluate, strengthen, and promote both voluntary and legislative product stewardship initiatives across North America.

Acknowledgements

PSI prepared this report for the Vermont Department of Health (VDH) Division of Alcohol and Drug Abuse Programs (ADAP). PSI would like to thank the VDH ADAP for providing the funds and guidance to conduct this project. We would also like to thank the many individuals in Vermont that contributed their time and provided valuable insights towards this project, especially those in law enforcement who organized and graciously hosted PSI for an in-person visit.

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1. Executive Summary

The Problem

The mismanagement of leftover household pharmaceuticals poses significant health, safety, and environmental risks. Storing unwanted and expired medications in the home increases the risk of misuse and puts children, seniors, and pets at risk for accidental poisoning. However, when drugs are improperly disposed, they end up in the environment where they contaminate our waterways.

Vermont's Response

The Lamoille County Sheriff's Department (LCSD) approached the Vermont Department of Health (VDH) Division of Alcohol and Drug Abuse Programs (ADAP) with an idea: to reduce the impacts of household waste pharmaceuticals across the state of Vermont (VT) through a drug take-back program. LCSD and VDH together established a statewide drug take-back pilot program ("pilot") funded through VDH and implemented by law enforcement, one piece of the state's multi-pronged safe drug disposal system.

PSI's Evaluation Project

The VDH ADAP hired the Product Stewardship Institute (PSI), a national expert on pharmaceuticals stewardship, to evaluate the pilot to determine whether it increased law enforcement participation in drug take-back. Broader goals of the evaluation project included recommendations to improve the pilot and help VDH with future planning and decision-making regarding its safe drug disposal system at large. The approach of the evaluation combined a literature review, ethnographic study (observations and interviews), and data analysis.

Key Results of Evaluation

The pilot successfully increased law enforcement participation in drug take-back across VT, reduced the burden on VT law enforcement participating in drug take-back, increased the amounts of drug waste collected, and helped protect VT's public and environmental health. Approximately 79% of the VT population lives within 10 miles of a participating law enforcement location, and 99% lives within 20 miles. The biggest challenges to the pilot were:

- Finding space for collected material;
- Amount of time required of law enforcement to participate;
- Liability to pilot organizers in handling drugs turned in anonymously; and
- Improper deposit of medical sharps ("sharps") in drug take-back receptacles.

Key Recommendations

Ways to improve the pilot include added incentives for law enforcement participation (e.g., increased hourly reimbursement rates, recognition opportunities); benchmarking additional measures of success (i.e., public awareness and percent of collection material that is controlled substances); encouraging more disciplined recording of data from law enforcement; ensuring all relevant federal regulations are met; systematizing yearly protocol refresher trainings; adding more specificity to the protocol; coordinating program promotion; developing a state-wide solution for sharps disposal; establishing a channel through which law enforcement staff can make suggestions anonymously; and setting aside dedicated funding to maintain and improve the program as it grows. Finally, VT should consider funding its drug take-back program through manufacturer funding only, instead of partially through taxpayer funds.

2. Introduction

PSI designed and implemented a combination ethnographic and quantitative evaluation of VT's statewide law enforcement drug take-back pilot program. The impetus for the pilot and this evaluation was the knowledge that unwanted and expired household pharmaceuticals threaten water resources and pose health risks to the public, including adolescent drug abuse and accidental child poisoning.

Environmental Risks

Each year, over $1 billion worth of leftover drugs are thrown in the garbage, flushed, or relegated to medicine cabinets. These disposal and storage strategies increase the risk of accidental poisoning, drug abuse, and contamination of our waterways.

When drugs are thrown in the trash, in the toilet, or down the drain, they end up in a landfill, sewage system, or a wastewater treatment facility not equipped to remove them. From there, pharmaceutical compounds enter the environment where they threaten aquatic health and the quality of our drinking water sources. A 2002 study conducted by the US Geological Survey found that 80% of U.S. streams tested were contaminated with pharmaceuticals, personal care products, or other organic wastewater contaminants. Since then, we have continued to find pharmaceuticals in wastewater, aquatic environments and drinking water sources.[i] Studies across the world have found concentrations high enough to cause gender abnormalities, reproductive problems, and population collapse in aquatic species.[ii,iii]

Public Health and Safety Risks

Storing leftover drugs in the home is not a solution. In unsecured medicine cabinets and drawers, they are susceptible to misuse and contribute to prescription drug abuse, the fastest growing drug problem in the US. According to a meta-analysis of studies describing opioid oversupply for adults, at least two out of three of patients who take opioids for post-surgical pain management have leftover pills, and three out of four patients store them unlocked. Nearly half of the respondents did not even know how to safely store their medication at home, out of reach of children or potential addicts, or how to properly dispose of it. When the medication was no longer needed, fewer than one third of the patients surveyed planned to dispose of the leftovers.[iv]

These statistics are especially troubling because 7 out of 10 prescription pain medication abusers get their drugs from family and friends, and abuse of opioid pain relievers is often a gateway to addiction and overdose. An estimated 3.8 million Americans 12 years old or older engage in the non-medical use of opioids every month, and an additional 2.6 million people misused other prescriptions such as stimulants

and tranquilizers.[v] Today, more Americans die each year from overdoses involving prescription painkillers than from heroin and cocaine combined, and the number of deaths from opioids has exceeded that from vehicular accidents. VT's 2014 age adjusted rate of drug poisoning deaths is the same as the U.S. average, at approximately 14.7 per 100,000 Vermonters.[vi] Young children are particularly at risk of accidental drug ingestion; every 15 minutes a child under the age of four will overdose on drugs found in the home.[vii] Nearly all unintentional childhood opioid exposures stem from family members' medications. Even when leftover medicines are placed in the household trash mixed with kitty litter or coffee grounds, they are still accessible to those experiencing addiction, children, and pets.

One strategy for responsibly managing household pharmaceutical waste is providing a safe and convenient way for consumers to dispose of their unused and expired medicine, commonly referred to as a "drug take-back program." While the number of drug take-back programs continues to increase in many parts of the country, still only about 3% of pharmacies and other entities eligible to collect unused prescription drugs for disposal in the U.S. have volunteered to do so.[viii] Of those, most programs serve urban and suburban populations, even as rural areas are facing drug abuse rates traditionally associated with urban areas. As a result of this lack of access to drug take-back programs, residents that want to rid their homes of leftover prescriptions throw them in the household trash, which can lead to diversion and abuse as well as environmental contamination. The dearth of easy-to-use and environmentally-sound disposal systems also leads to long-term storage of leftover drugs, further exacerbating the high rates of prescription drug abuse, especially among teens. VT is among the most rural states in the U.S., so many of its communities faced a lack of convenient drug take-back programs.

Safe Drug Disposal for Vermont

In 2016, three key events took place in the state of VT that led to the establishment of the law enforcement drug take-back pilot:

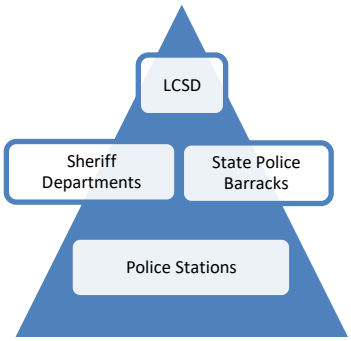
1. June: VT State law (Act 173) passed, which included a small section on safe drug disposal. It appropriated funding to VDH to create an ADAP position that oversaw development of a statewide drug disposal system and included funding for media campaigns.
2. September: LCSD approached ADAP about current safe drug disposal activities (e.g., work with DEA on state and national Drug Take-Back Days), and potential activities that could be part of a statewide system, and the idea for the pilot was born.
3. December: A VT Drug Disposal Stakeholder group including diverse perspectives from the state, regional, and local levels (state and local government, law enforcement, public health organizations, environmental groups, pharmacies, etc.) was convened to consider the state's options for a statewide system and to recommend a path forward.

With support from the Stakeholder group and funding from VDH, LCSD did a limited soft launch of the pilot in July of 2017 and began widespread collections the following August. The VDH also added other components to VT's statewide drug disposal system to increase convenience to residents, including a mail-back program, pharmacy kiosks, and public education (i.e., outreach campaigns).

3. Overview of Vermont's Law Enforcement Drug Take-Back Pilot

The goal of VT's law enforcement drug take-back pilot program was to organize, improve, and expand the involvement of law enforcement in the safe disposal of household pharmaceutical waste across VT. This would make it more convenient for residents to dispose of leftover drugs properly, which would increase the quantity of drugs removed from harm's way. It would also address the challenges previously hampering VT law enforcement's participation in drug take-back, most prominently a lack of space to securely store collected material.

The viability of the pilot was due in part to some of the ways VT is unique. First, it is one of the country's most rural states, so it lacked the high concentration of pharmacies (and other authorized drug take-back locations) found in cities. This created a clear need for additional drug take-back locations and made law enforcement an appropriate choice to spear-head the program. Second, leaders in VT's law enforcement— specifically the Lamoille County Sheriff and the Commissioner of VT's Department of Public Safety— were passionate about addressing this need and encouraged law enforcement agencies state-wide to participate. This made funding the program worthwhile and designing the program possible. Finally, law enforcement in VT is very cooperative across municipal lines, counties, agencies, and organizations which made program implementation feasible.



LCSD and the VDH designed the pilot in a tiered system with LCSD on top, taking on most of the work and responsibility, and coordinating the other participating law enforcement departments. All participating law enforcement locations have a collection system (i.e., a secure kiosk or container deposit slot) accessible to the public. Once per month, staff from the LCSD drives to each of the other sheriff departments across the state to pick up their collected material. Each sheriff department is alerted and provided a schedule in advance of the LCSD pickup, so they can gather collected material from their local police stations. Sometimes LCSD stops at individual police stations if arrangements are made for an extra pickup, and sometimes multiple sheriff departments work together to gather their material in one place to save the LCSD an extra stop. The State Police recently agreed to join the program as well, having overcome initial security challenges, and their barracks are being added to the LCSD monthly stops.

In order to standardize the process and make it as efficient as possible, LCSD provides all law enforcement participating in the pilot with a written protocol (see Appendix A), as well as packaging for collected material: uniform cardboard boxes, plastic inner liners for the boxes, zip ties, and tape. The protocol addresses how to package, label, weigh, and transport the material efficiently and securely, keeping pertinent information (e.g., original collection location, weight of box, total number of boxes) accessible and keeping secure information (e.g., specific box contents) confidential. They also received VDH Drug take-back stickers, a VDH sheet for accounting and reimbursement, and training presentation.

For the first year of the pilot, there was no promotion of the program to the general public. This was intentional, so that the LCSD and other participating law enforcement agencies had time to try out the program, get comfortable with the protocol, make adjustments, and improve their preparedness for the greater quantity of material that public outreach encourages.

4. Evaluation Design

PSI was hired by VDH to conduct an evaluation to assess whether the pilot successfully increased participation of law enforcement in drug take-back, and to make recommendations for improvement to the pilot based on the first year of operations. PSI is well positioned to provide an unbiased assessment as a third party that was not involved with the project design or implementation, and we have extensive experience and expertise in drug take-back and program evaluations from which to draw.

To ensure the strongest possible evaluation project ("project") results, PSI first reviewed past program evaluations done in-house and by other organizations, including examples of the ethnographic approach, and gathered best practices. We prepared a participant-oriented evaluation design combining qualitative and quantitative information (see Appendix B for full Methodology & Metrics) following these steps: literature review, ethnographic research, and data analysis.

Literature Review

As part of the literature review, PSI gathered and examined reports, records, notes, and studies on three topics:

- Drug/health statistics: past and current landscape of VT drug use, drug abuse, and drug waste;
- Timeline: history of events and stakeholder involvement that led to the pilot establishment; and
- Pilot design and operations: protocol, procedures, participation, and collection information.

This information provided context and a foundation of knowledge to better understand and assess the pilot. The focus of the evaluation was the first year of the pilot's operation, measured from September of 2017 through August of 2018. Demarcating and evaluating on a one-year time-period will help provide a clear benchmark against which to compare program results and progress in future years.

Ethnographic Research

Ethnography is an approach for describing a group or culture. The process relies on direct, personal observations, asking questions, and reviewing documents. Ethnographic research is qualitative, focused more on description than statistics. Behavior and systems are studied in their everyday context, and data is gathered from unobtrusive observation and informal conversations. Ethnographic research is also subjective, allowing the researcher to interpret information and explore it for meaning and value.[ix] To conduct the ethnographic research for this project, PSI followed a plan including the following steps:

- Developed a list of target interviewees with VT stakeholders and law enforcement participating in the pilot (see Appendix C for full interviewee list);
- Developed a list of questions to guide informal interviews, provided the questions to stakeholders for review, and finalized the questions (see Appendix D for interview questions);
- Scheduled phone or in-person interview conversations;
- Conducted the interviews (by phone and in person);
- Made in-person observations and went on pilot pickup "ride along" with LCSD;
- Kept records of research, interviews, and observations (i.e., recorded interviews when possible, kept written notes); and
- Conducted data analysis (i.e., identified, tracked, and categorized key information within and across interviews).

PSI conducted an initial round of interviews by phone with VT stakeholders that were not directly involved in the pilot implementation but were knowledgeable about VT's drug take-back history and initiatives. We customized questions for stakeholders based on their experience and involvement in safe drug disposal. These conversations revealed a timeline of VT events culminating with establishment of the pilot (and VT's drug take-back system at large). It also clarified the key decisions made and the individuals involved. Each conversation helped expand our list of potential interviewees and informed the standardized list of questions that PSI developed to guide in-person interviews with law enforcement.

The second round was in-person interviews with law enforcement participating in the pilot. These were facilitated by LCSD, which arranged for PSI to join on their August pilot pick-ups. While guided by questions, these conversations were flexible to allow the interviewee to delve into topics they considered important. The law enforcement interviews were designed to address key areas of inquiry including:

- Ease and/or difficulty of program participation;
- Labor/time requirements;
- Storage/logistical requirements;
- Financial and other resource requirements; and
- Identification of gaps in support (e.g., from state government).

During the ride-along, PSI also made first-hand observations about program implementation and application of pilot protocol within the context of law enforcement officers' daily duties and routines.

Data Collection & Analysis

PSI compiled data in three categories:

- VT's drug waste;
- pilot collection amounts and miles traveled by participating location; and
- stakeholder/law enforcement observations, experience, and feedback.

PSI acquired most of our data on drug waste from reports, studies, and other documents. Some of this information also came from stakeholder interviews. Finally, PSI reached out to all of the active pharmacy-based drug take-back locations in VT to gather baseline data on drug waste being collected through non-pilot drug take-back programs.

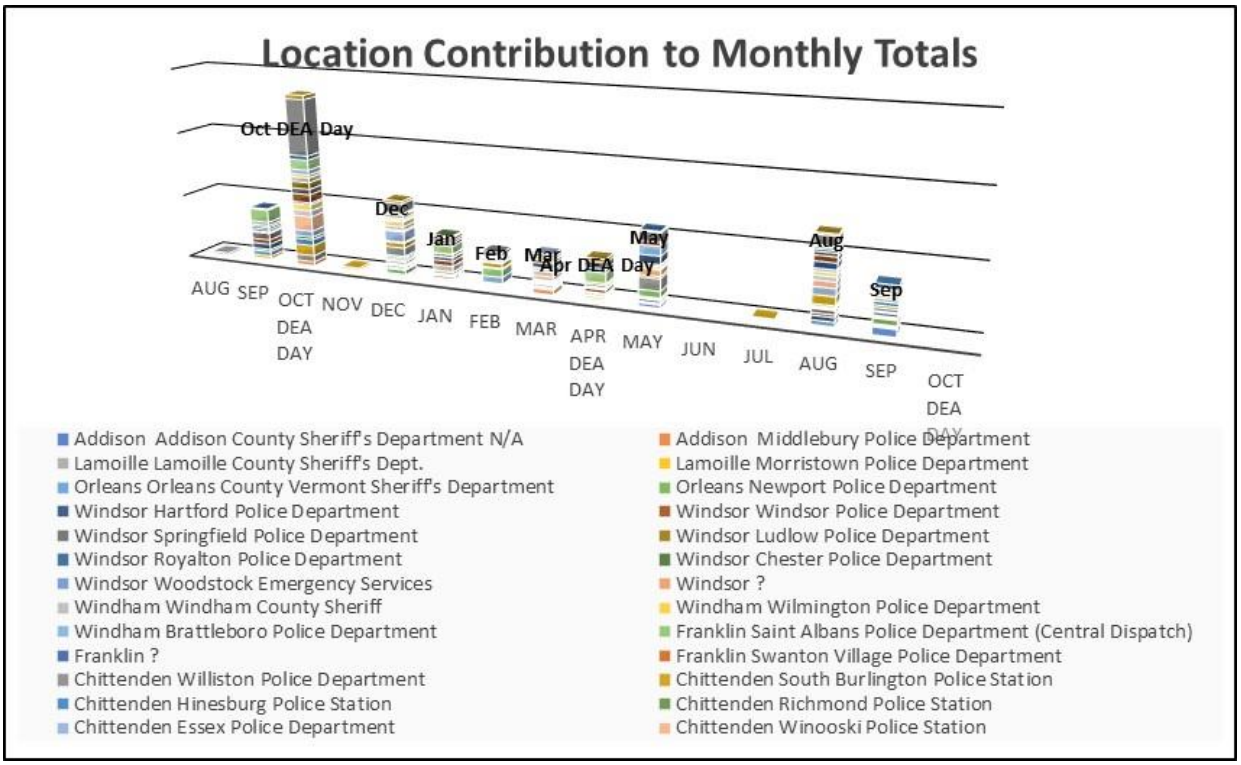
Pilot collection totals and distance traveled was recorded by each participating law enforcement location, compiled by LCSD, and provided monthly to PSI. (See Appendix E for Collection data and Appendix F for Miles Traveled data). We used this data to calculate the relative impact of the pilot on VT's drug take-back activity, and to compare rates of drug waste over time, across regions, and in other U.S. states.

Law enforcement insight was acquired directly from conversations with interviewees, recorded on a smart-phone application and in written notes. Information from each interview was coded and categorized. Data from all the interviews was thus combined and reviewed together, allowing a more direct comparison between interviews across information categories. We wanted to see what experiences, concerns, challenges, successes, and ideas for improvement were shared.

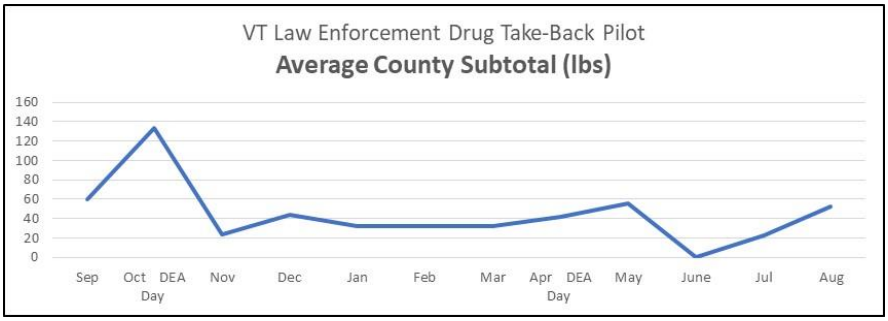
5. Results

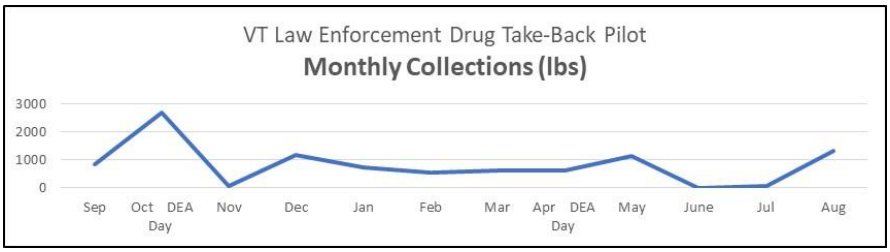
Vermont Drug Waste Statistics & Pilot Program Data

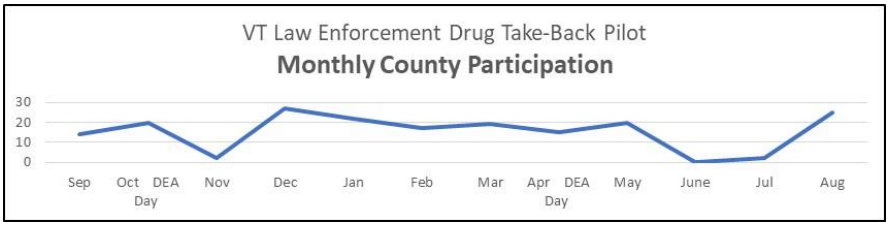
PSI's analysis of the pilot's year one data showed that all 14 VT county sheriff departments participated in the pilot, although some like Essex and Grand Isle only minimally (e.g., turned in collected material one time). There were 44 individual collection sites (sheriff departments and police stations) across VT's 14 counties that participated at least once, most more than once.



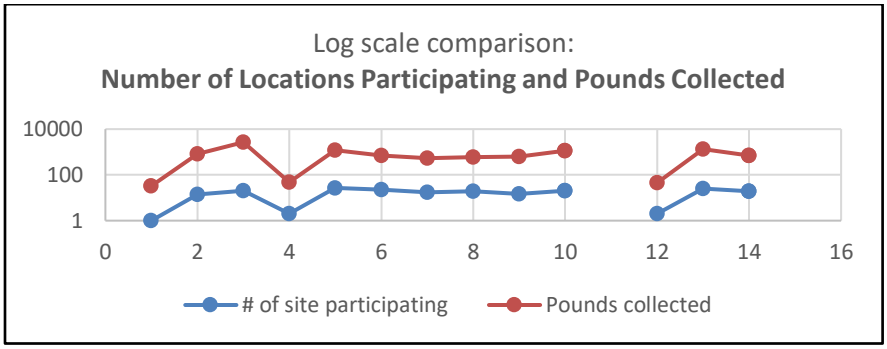
The total material collected through the pilot in year one was 9,719 pounds (lbs). Each month, the average collected (across all the locations) was 810 lbs and the median was 670 lbs. When comparing the counties' total collections for the entire first year, the average collected was 694 lbs per county and the median was 369 lbs. The months with the highest collection across all counties were October, December, May and August. October collections were twice as high as any other month, most likely for two reasons: (1) it was the first time that the majority of the collection locations participated in the pilot, so they likely had stockpiled drugs for a long time, and (2) October coincided with the Drug Enforcement Administration (DEA) National Drug Take-Back Day, a highly publicized events that originated through cooperation between DEA and VT. October accounts for about 25% of the overall collection total for the year. Stockpiling probably had a greater impact than coinciding with a National DEA drug take-back day seeing as the second DEA National Drug Take-Back Day in April did not see such a dramatic spike in collections. The average collection per county also saw a notable increase in October:







Two factors are strongly correlated to each other: the total amount collected through the program each month, and the number of counties that participated each month. This indicates that the collection totals were not driven by one (or a small number of counties) collecting an influential amount. Rather, there was a relatively equal distribution of participation by the state's 14 counties. When more of them participated, the collection total rose.



The total miles traveled by law enforcement participating in the pilot was 9,987. Each month, the average miles traveled (across all locations) was 832 and the median was 650. When comparing travel by each county, the average miles traveled was 666 and the median was 752. The months with the highest total miles traveled (by all counties combined) were March, April, May, and August. This could be related to the mild weather common during those months; it is possible law enforcement is more likely to travel during good weather, or more available to travel since there are fewer weather-related emergencies. However, this is just conjecture and would need to be further studied. Interestingly, when comparing average lbs collected to average miles traveled by county and by month, the ratio is about 1 to 1:

	Miles	Lbs.	Lbs/Mile
Total	**9986.60**	**9719.07**	**1.03**
Avg. county subtotal	665.77	694.22	0.96
Median county subtotal	752.00	369.24	2.04
Avg. monthly subtotal	832.22	809.92	1.03
Median monthly subtotal	650.50	670.09	0.97

We estimated the pilot's convenience to the public by comparing population distribution to the pilot locations. Using VT's drug take-back site locator, we estimated that 57% of the VT population is within 5 miles of a participating law enforcement location, 79% are within 10 miles, and 99% are within 20 miles[x]. Convenience is even higher when non-pilot locations are considered, adding about 40% more locations that law enforcement alone. As of October 2018, VDH reported that there was a total of 81 drug take-back kiosks available to the public in VT including:

- 49 law enforcement (participating in the pilot)
- 22 pharmacies
- 7 hospitals
- 3 other

According to this data, about 60% of all the drug take-back locations in VT are pilot law enforcement sites, and about 27% are pharmacies. PSI reached out to the 22 pharmacy-based locations to gather their drug take-back collection data. Based on information provided by the pharmacies and some calculations to fill in data gaps, we estimated that the total yearly collection at these pharmacies is 3,226 lbs.

	Number of locations	Total collection (lbs)	Average yearly collection per location (lbs)
Total	71	12,945	345.98
Law Enforcement	49	9,719	198.35
Retail Pharmacy	22	3,226	146.64
Difference	27	6,493	51.71
Percent difference	45%	33%	26.07%

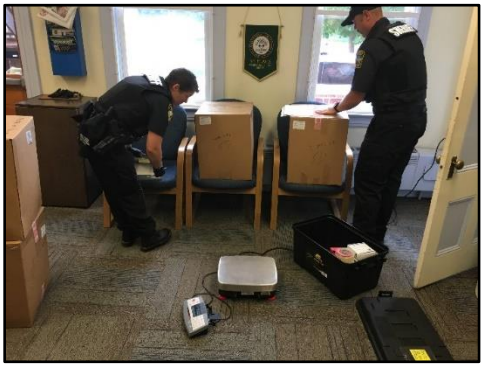
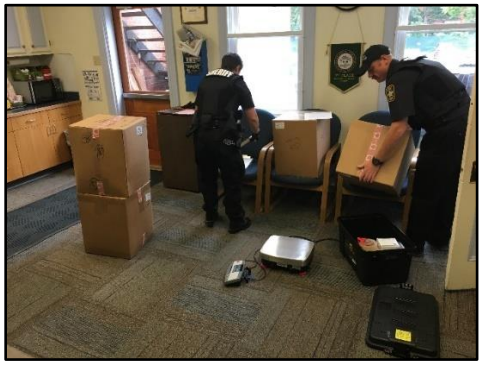
To compare collection rates at pharmacies and law enforcement locations, we controlled for the number of collection locations and calculated the average amount collected at a law enforcement location (198 lbs) versus a retail pharmacy (146 lbs). There are more than double the number of law enforcement locations engaged in drug take-back in VT compared to pharmacies, and each of them is collecting an average of 26% more than their retail pharmacy counterparts. This is true even though pharmacies tend to be more convenient to the general public and frequented more often.

The total amount of household drug waste generated in the state of VT (and thus available for collection through a drug take-back program) is about 106,000 lbs. To calculate this figure[xi], we relied on two studies found through our literature review that were the most recent, relevant, and supported: (1) A general population survey, which found that 42% of all medications are wasted.[xii] The authors' calculations of drugs dispensed and wasted are corroborated by other studies and did not vary significantly based on age, income or other demographics; and (2) A Kaiser Family Foundation reported 7,185,727 prescriptions were dispensed in 2017.[xiii] Using these figures, we calculated that, in its first year, the pilot collected 9% of waste drugs available for collection in VT. The percent collected through the pilot and retail pharmacies combined was 12%. This demonstrates the vast potential to increase

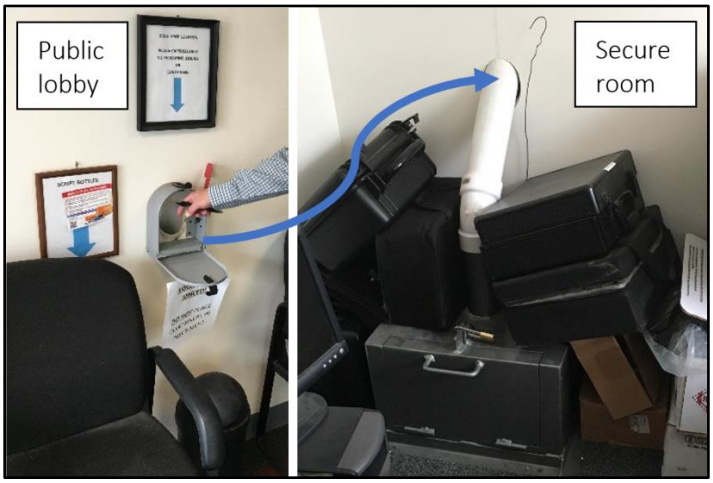
household drug waste collections in VT, while the total amounts collected per month, per county, and total are a useful benchmark to compare increases in collection over coming years.

Stakeholder and Law Enforcement Data

PSI coordinated with LCSD to visit during the pilot's monthly pickups in August 2018. LCSD personnel welcomed PSI into the department to see where and how collected material was securely stored to await destruction, and they arranged for PSI to join them during the four days of pick-ups at other VT Sheriff Departments and police stations. Thanks to this cooperation, we were able to observe the pilot process first hand, take photos (see photos below), and speak with participating law enforcement at every stop.


We also saw the different collection systems at each law enforcement location (see photos below).




PSI had the opportunity to watch how pilot protocol was implemented, experiencing what worked well and what could be improved. Collection steps for LCSD included the following:

1. Document: arrival and departure times; bags/boxes picked up at each location; mileage/gas.
2. Activate body camera (if applicable) upon arrival at a department.
3. Meet deputies of the department and receive collected material.
4. If not already boxed properly: itemize bags and place into a large box; seal inner liners with zip ties and outer box with evidence tape; seal box with evidence tape and initial by LCSD member and department; apply LCSD sticker (include "department collected from" in description section).
5. Weigh boxes in front of department and document weight of each box and total collected.
6. Provide receipt carbon copy to department with total weight collected, number of boxes, etc.
7. Collect officer sign sheet for location with printed name and date for transfer of custody.

8. Place collected material in collection vehicle and turn off body camera.

PSI was able to ask standardized questions as well as supplemental questions as they arose. From the nine law enforcement interview conversations (see Appendix G for summary of interview responses), we learned that the main reasons that law enforcement joined the pilot was to help their communities with safe drug disposal, mostly for public health reasons. They all believed this was an important role of law enforcement, but most noted that their main challenge before the pilot had been finding enough secure space for storage of collected materials. Law enforcement locations that previously hosted a drug take-back program had to store the material in their evidence rooms, which took up a lot of space in between twice-yearly DEA drug take-back days when the material could be transferred for destruction. The pilot also helped distribute the work among more drug law enforcement locations. Previously, due to a gradual overall increase of public awareness regarding the importance of safe drug disposal, collection amounts had been increasing and threatening to overwhelm participating locations. The pilot helped share the workload among more sites to lessen the burden on each site. Law enforcement further appreciated that material was provided, and that the box size was standardized. This made collection, storage and accounting of material easier.

Still, there were challenges reported. Some of the smaller sheriff departments noted that they did not have enough man-power to collect from all of their local police stations, so they implemented creative solutions before each monthly LCSD pickup to overcome this challenge. Some called police stations to find out which ones had reached critical mass of collected material and only picked up from those. Others had police stations bring collected material to them. For added program efficiency, some of the smaller sheriff departments that shared borders would combine their material at one department to reduce the number of stops LCSD had to make. This required vigilant documentation of the amount and source of material the boxes, especially when half-empty boxes from various locations were combined. All reported success with these approaches. Other main challenges mentioned were medical sharps incorrectly deposited in bins, which threatened the health and safety of law enforcement handling collected material. There were also concerns over potential drug diversion through the program, which most interviewees felt were addressed by adherence to the strict program protocol and DEA requirements, and discrete treatment of pickup schedules. Many reported that having a schedule in advance was helpful, though it was sometimes a burden to wait for locations if pickups ran early or departments ran late.

Promotion for the pilot was kept to a minimum to allow for time to practice the protocol before soliciting an increase in collection amounts. There was also a concern mentioned by one individual that as the prescription drug supply in homes decreases, individuals experiencing addiction might start turning to other sources or more dangerous drugs. Though the pilot was not systematically advertised, many of the law enforcement locations reported promoting their collection location, most commonly through social media. Other promotional strategies mentioned at least once included: radio public service announcements, information on their websites, advertisements with groups for the elderly, signage during national drug take-back days, and advertisements in the newspapers.

PSI learned that law enforcement's experience with the program was overwhelmingly positive. They found it easy to join, smooth to participate, and did not find the ongoing labor or time requirements to be onerous. No major gaps in support were identified; one interviewee said a higher hourly compensation rate would be helpful but was willing to participate at the current rate. Another recommended that locations ensure they have time to participate before committing. All felt it was worthwhile to participate, and many expressed gratitude to the LCSD for taking on a leadership role to make the pilot possible. While driving between sites, PSI had time to speak at length with LCSD personnel about their pilot

experience and suggestions, and we witnessed LCSD leadership as they adapted to unforeseen challenges and circumstances included late or missing representatives at locations.

6. Conclusions: Law Enforcement Program Challenges & Successes

The biggest challenges to the pilot were:

- Finding space for collected material;
- Amount of time required of law enforcement to participate;
- Liability to pilot organizers in handling drugs turned in anonymously; and
- Improper deposit of sharps in drug take-back receptacles.

As pilot leaders, LCSD took on the bulk of the pilot work and invested the most time and space to overcome pilot challenges. First, to address potential liability issues, LCSD developed detailed pilot protocol and communicated it to participating law enforcement through training material (i.e., handout, power point presentation with photos). They also invested in a designated, secure, room at the LCSD to centralize collected material monthly instead of twice yearly was critically important to the pilot's success. VDH helped LCSD address space issues by providing the means to purchase a larger vehicle for pilot pick-ups, with more room for transportation of collected material in one trip.

To add more collection locations to help distribute the work and provide greater public convenience, LCSD recruited State Police into the pilot. The State Police were hesitant to join at first due to concerns including kiosk size and surveillance. However, LCSD found a pilot champion in the organization's ranks and worked with him to make incremental progress addressing each of their issues (e.g., a collection system with a smaller floor space was selected, security cameras were installed).

Overall, the pilot has been extremely successful in increasing law enforcement participation in drug take-back across VT, reducing the burden on law enforcement in VT participating in drug take-back, increasing the amounts of drug waste collected, and ultimately protecting VT's public and environmental health. The success of the pilot is evident in the VT law enforcement collection rates in VT that are higher than pharmacy collection rates.

The pilot's success is due in part to LCSDs leadership and investment in the program: many interviewees expressed respect for the LCSD sheriff, which was a common theme among all interviewed. The sheriff's reputation and relationships with key stakeholders the state were critical to the pilot's feasibility and success. Success of this pilot may also be due in part to Vermont's uniquely rural demographics where law enforcement are a more integral part of the community and pharmacies are less ubiquitous than in an urban environment. Nonetheless, many aspects of the program can serve as a model for other states. In particular, the pilot's tiered design for pickups, the establishment of strict protocol, training and adherence to protocol by participating law enforcement (ensuring consistency and preventing diversion), the willingness of law enforcement to cooperate, and the support from VDH were all key elements that any state-wide program should emulate.

7. Recommendations to Improve VT's Law Enforcement Pilot Program

Despite its success, there are additional measures by which the pilot could be strengthened:

- Greater law enforcement participation;
- Increased collection quantities;
- Improvement in the quality of data collected;
- Further reduction of diversion risks;
- Increased program support and public awareness; and
- Sustainable funding for safe drug and sharps disposal.

PSI recommends several steps to achieve improvements in these areas.

Law Enforcement Participation & Collection Quantities

All 14 VT county sheriff departments participated in the pilot at least once in the first year of operations. However, efforts should be made to encourage all counties to participate every month, and for all local police departments to participate. More locations ensure more convenience which encourages public participation, and this in turn increases the amount of drug waste collected and the percent of available drug waste responsibly disposed. Some possible strategies include VDH offering the following as incentive to law enforcement:

- Increased hourly reimbursement rates;
- Recognition opportunities (e.g., award ceremonies, televised meeting with state leaders); and
- A long-term contract instead of yearly grant (to reduce the administrative burden on LCSD).

Data Collection

As has been done in this report, it would benefit VDH to diversifying measures of success beyond measuring the level of law enforcement participation to include public awareness and percent of collection material that is controlled substances (which is already being considered to help measure impact over time on addictive, high priority drugs). Benchmarks for these measures should be taken as soon as possible to measure future progress. It would also be valuable to benchmark and track if and how the progress of VT drug take-back system components corelate with public health measures, like a reduction in opioid use, and opioid-related hospitals visits, overdoses, and deaths.

There are various other ways that data collection through the pilot can be improved. Strategies include encouraging more consistent recording of data from law enforcement every month. For example, miles traveled should always be separated out by individual collection location (or by the same combination of locations month-to-month) for comparability over time. It would also be helpful if data was always entered alphabetically by location for easier compilation and analysis. Additionally, data should be entered on the same day of each month, and travel distance should be broken out for every city; two cities should not be combined if possible. These small changes will increase that value that can be derived

from analysis of pilot data over time, to effectively monitor program progress and highlight areas that need improvement.

Pilot Security

VDH and LCSD should work together to review all federal regulations relevant to drug take-back programs. For example, the DEA does not support outdoor kiosks, and calls for kiosks to be placed inside of collecting locations (See §1317.35 Collection by law enforcement. (3) Collection receptacles located inside law enforcement's physical address; §1317.75 Collection receptacles (d) (1) Inside a collector's registered location, inside law enforcement's physical location, or at an authorized long-term care facility).

To reduce the risk of diversion of drugs collected through the pilot program, it would help to further tighten protocols, adherence, and accountability of law enforcement. This can include yearly refresher trainings on protocol and encouraging officers with more experience running pick-ups to accompany and assist newer officers. Finally, it would be prudent to add more specificity to the protocol, for example:

- Discourage unplanned/off schedule pick-ups;
- Specify how long to wait at each pick-up site and what to do for no-shows; and
- Specify where to place scale and how best to calibrate it.

Program support

To ensure that the drug take-back program is sustainable, VDH should consider an approach by which it would be 100% funded by drug manufacturers doing business in the state, versus the partial funding provided by drug companies in VT for safe drug disposal today. VDH can use the same approach to develop a state-wide solution for medical sharps disposal, in tandem with its drug take-back system, including increased education and convenient infrastructure for safe sharps collection. At minimum, law enforcement participating in the pilot should be provided with containers to safely collect sharps waste they encounter. Successful models for such “extended producer responsibility” programs (and legislation to establish them) can be found in California, New York, Washington, and Massachusetts.

In the meantime, there are several ways VDH can provide additional program support to the pilot. First, VDH should plan and implement coordinated promotion of the law enforcement program specifically, and for the VT drug take-back system as a whole. Now that the pilot has completed its first year and has secured participation from an increased number of law enforcement collection locations, it has the capacity needed to accommodate an increase in collection quantities. Such coordinated promotion is also an opportunity to better establish the pilot’s place within the larger VT system and goals by explaining to the public their multiple safe drug disposal options. This effort could be complemented by one website with information about the entire system, and individual pages for each element (pilot, mail-back, pharmacy kiosks, etc.). It will also be important to keep the existing online locator map up to date with retail, law enforcement, and mail-back locations.

Finally, VDH can establish contingencies to help the pilot evolve and improve. VDH and/or LCSD can develop a channel through which law enforcement participants can anonymously make suggestions for additional improvement, to anticipate and address problems. It would be prudent to budget for improved program infrastructure as needed (e.g., self-leveling scales), and for more frequent destruction of collected material to avoid stockpiling at LCSD, especially if collection amounts increase over time.

8. Appendices

Appendix A: Pilot Protocol for Law Enforcement

VDH Drug Take Back Policy

The goal of this policy and program will be to encourage collection of unwanted, expired medications and drugs from our local communities across the state of Vermont to ensure proper disposal and minimize unauthorized use of medications. By making collection points and locations more convenient for the general public we hope to increase proper disposal of medications.

The LCSD will break the state into collection quadrants and pick up at every sheriff department at a pre-arranged time once each month. The LCSD will house and catalog the collected drugs and medications for a bi-annual pick up during the federal drug take back program.

Each sheriff's department will collect from participating police departments and drug boxes if applicable in their county and have the boxes/ bags ready for LCSD to pick up at the pre-determined time.

Box / Department Collection:

**** This is a guide for departments; we recognize some departments have body cameras and other equipment. Please adjust for your department and contact LCSD with questions or problems*****

1. To maintain integrity of collection at each point to include at the collection location two officers/ troopers/ deputies will be present and names documented on box for chain of custody
2. Once removed from collection container or from a participating department
    a. The bag inside will be sealed. (tape or Zip tie's) then sealed with evidence tape.
    b. Outer box will be sealed with evidence tape (date and initialed by 2 people)
    c. Labeling Sticker will be applied with location of pick up/ number of bags or boxes from that location
    d. Optional weight of box bag as most depts. Do not have scales.
    e. Detail form will be filled out with:
        i. Starting Time and mileage/ ending total mileage arrival and departing time, pick up location, deputies present ALL ON PROVIDED FORM FOR REIMBURSMENT.
3. Preparation for LCSD: If you repackage multiple bags into a box please make sure that is noted on the box as LCSD at the end of the process will need to re-open and weigh each bag for VDH statistics. If the box only has one bag from one collection point that is fine the outer sticker is sufficient.

LCSD Collection from each county:

1. Each county will be responsible for collecting from the participating departments/ Drug boxes within the county.
    a. Each county needs to follow the above procedure for sealing and documenting on box.
2. LCSD will have two deputies for collection from county locations.
3. LCSD will document each box/ bag, weight of box/ bag and weigh each box for accuracy.
4. LCSD will provide a receipt of boxes obtained (one to dept, one to LCSD and one with box for evidence room)
    a. LCSD will issue master receipt of all boxes picked up from location with weights
5. Input into LCSD evidence room:
    a. Boxes will be individually identified by number and logged into evidence for bi yearly pick up.
    b. Weights for locations will be obtained initially at this step to provide feedback to each dept for collection points.
    c. Master list will be maintained continued chain of custody as well as ease of removal of random box samples for individual audit of drugs for Vermont Health department.

Appendix B: Methodology & Metrics

Drug Disposal Law Enforcement Pilot Project Evaluation METHODOLOGY & METRICS			
		Details	**Source**
Methodology description:		Combination of qualitative (ethnography through a participant-oriented model) observation/description/assessment, and quantitative analysis.	
Raw data categories:			
	VT population data	Over time, and current (for full state, and by county)	U.S. census
	VT historic collection amounts and methods	Number of pounds of drugs collected in the two years before the pilot, and collection methods used	ADAP information; Online VDH collection location map data
	Average drug waste generated per person in US	Meta-analysis of existing estimates for per-person household drug waste generated by Americans on average. May select one estimate, or may combine estimates to establish an average or range for use in analysis	(TBD) Ex: Law et al. 2015 "Taking Stock of Medication Wastage Unused Medicines in US Households"; Bicket et al. 2017 "Prescription Opioid Analgesics Commonly Unused After Surgery: A Systematic Review
	Pilot Collection locations	Number of law enforcement locations involved in the pilot, and participation frequency and trends over the pilot period	LCSD
	Pilot man hours, total and over time	Number of hours dedicated (or percent fte dedicated) to drug take-back activities at each participating law enforcement location	LCSD
	Pilot participation, over time	Number of law enforcement locations participating compared to total number locations	LCSD/ADAP monthly and total spreadsheets
	Pilot collection amounts, over time	Number of pounds of drugs collected each month from participating locations during the pilot	LCSD/ADAP monthly and total spreadsheets
	Pilot collection amounts, total	Total pounds of drugs collected and destroyed in the pilot period	LCSD/ADAP monthly and total spreadsheets
	Pilot convenience/coverage of residents	Number and percent of VT residents that live within 5, 10, and 20 miles of participating law enforcement	ARC GIS maps (if needed)
	Pilot collection contents	If auditing the contents is feasible, quantity of collections that are controlled substances	
	Pilot cost	Total cost and cost breakdown for law enforcement pilot, including source of funding for each category: Labor, supplies, transportation, destruction, other (e.g., promotion)	LCSD
	Pilot promotion/outreach	Dates of outreach efforts compared to monthly collection amounts and analyzed for degree of correlation	Interviews; Megan Trutor (Vermont's MOST Dangerous Leftovers); Regional Prevention Consultants; Google alerts
	Pilot challenges/lessons/observations	Qualitative feedback from law enforcement about their experiences participating in the program, including successes, barriers to participation, labor and space considerations, and other factors influencing pilot participation	Interviews
	Program operations	Processes and procedures, including timing and identification of potential and actual bottlenecks/challenges,	In-person observations; photographic documentation; interviews; LCSD; ADAP
Analysis-rendered data categories:			
	Pilot collection per capita and per household	Total pounds of drugs collected and destroyed in the pilot period per person in each county/in VT and per household in each county/in VT.	Calculation using raw data

	Available material to collect in VT	Estimated waste pharms generated per person in US, applying VT population data	Calculation using raw data: (Average drug waste generated per person in US) x (Population of VT)
	Pilot percent of available material collected	Total collected versus estimated total available for collection	Calculation using raw data: (Total pounds available for collection in VT) / (Total pounds collected in pilot)
	Actual cost per pound	Total cost incurred, divided by pounds of drugs collected/destroyed	Calculation using raw data: (Total Cost)／(Total Pounds)
	Theoretical cost per pound	Actual cost plus covered costs (e.g., free DEA disposal, CVS kiosk grants, free promotion) divided by pounds of drugs collected/destroyed	PSI data on average drug take-back costs
Steps: data acquisition/analysis			
1	Compile pilot data	Compile and track in Excel based on data categories/details/sources above	
2	Compile VT historic collection data	Compile and track in Excel based on data categories/details/sources above	
3	Compile dates/descriptions of outreach efforts	Compile and track in Excel based on data categories/details/sources above	
4	Analyze collection data: Collection per capita; Trends over time by location, by collection method, in relation to outreach efforts, in relation to legislation/funding	Excel graphs/charts, ARC GIS maps (if needed)	
5	Describe program operations and document with photographs	In-person observations	
6	Interview law enforcement participating in collection program; Analyze interview information (see steps below)	Phone and in-person interviews with 57 law enforcement agencies in 13 sheriff department regions who are eligible to participate in the pilot program; Review/code for motifs and key insight	
	INTERVIEW PROCES		
6a	Draft template questions that address:	(1) ease and/or difficulty of program participation,	
		(2) labor/time requirements,	
		(3) storage/logistical requirements,	
		(4) financial and other resource requirements, and	
		(5) any candid feedback volunteered by interviewees which may provide additional insight into the program, such as identification of gaps in support.	
6b	Obtain feedback on questions from PSI policy staff and experts in interview technique/ethnography from within PSI's network		
6c	Incorporate feedback/finalize interview questions		
6d	Finalize list of interview targets and schedule phone and in-person interviews		
6e	Conduct/record informal interviews with participating law enforcement, guided by template questions		
6f	Organize/code interview notes		
Results			
	Ethnographic study	Quotations, descriptions, and excerpts of documents resulting in narrative program description	
	Interviews	Pilot challenges, solutions/successes, lessons learned	
	Quantitative data analysis	Factors that have strongest/weakest effects on collection	
	Recommendations	Concrete suggestions based on findings to help increase law enforcement participation in drug take-back in VT	

Appendix C: Interviewees

Name	Title, Org	Category	Pilot Insight Area	Interview Form
Mariah Sanderson	Director, Burlington Partnership for a Healthy Community	Public Health non-profit	Impetus	Phone
Megan Trutor	Substance Abuse Information Director, VDH	State government	Public awareness/Education	Phone
Hilary Fannin	Regional Prevention Partnerships Program Manager, VDH	State government	Public awareness/Education	Phone
Roger Marcoux	LCSD	Law enforcement	Planning/Implementation	Phone
Lindsay O'Steen	LCSD	Law enforcement	Logistics/Implementation	Phone
Thomas Anderson	Commissioner, VT Department of Public Safety	State government	Planning/Implementation	Phone
Kevin Lane	Captain + Commander of Special Investigations, Vermont State Police/Drug Task Force	Law enforcement	Planning/Implementation	Phone
Chris Paquette	DEA Diversion Investigator	Federal government	Regulations	Phone + In-person
Leo Bachand and Chuck Bachand	LCSD	Law enforcement	Implementation	In-person
Heidi Patch and Claude Marcoux	LCSD	Law enforcement	Implementation	In-person
-	Lieutenant, Rutland County Sheriff's Department	Law enforcement	Implementation	In-person
-	Sheriff, Washington County Sheriff's Department	Law enforcement	Implementation	In-person
-	Captain, Orange County Sheriff's Department	Law enforcement	Implementation	In-person
-	Captain, Windsor County Sheriff's Department	Law enforcement	Implementation	In-person
-	Chief, St. Albans Police Department	Law enforcement	Implementation	In-person
-	Sheriff, Chittenden County Sheriff's Department	Law enforcement	Implementation	In-person
-	(NA), Orleans County Sheriff's Department	Law enforcement	Implementation	In-person
-	Chief, Caledonia County Sheriff's Department	Law enforcement	Implementation	In-person
-	Assistant, Morristown Police Department	Law enforcement	Implementation	In-person

Appendix D: Interview Questions

Interview Questions: Law Enforcement Drug Take-Back Pilot

VDH evaluation project

1. When did your agency start collecting unwanted/expired drugs? Was it before the pilot began?
    - If so, for how long did you collect before the pilot began? How much did you collect before the pilot began? At what frequency did you collect (bi-annually, annually, etc.)?
    - If not, why were you not collecting before?
2. What were the main considerations/concerns when deciding whether to join the pilot?
    - Were these concerns addressed? How?
    - What advice would you give to other law enforcement agencies before they start/join a drug take-back program?
3. Why did your agency ultimately decide to join/not to join?
    - Do you think that was the right decision? Why?
4. Do you see drug take-back as part of the role/responsibility of law enforcement?
5. What was the process to join the pilot program like? Easy or difficult? In what ways?
6. Has participating in the program been easy or difficult? In what ways?
7. What is your specific role in participating in the pilot?
8. Can you tell me about the labor/time required from you and others who play a role in your agency's participation?
9. Can you tell me about the storage/logistical requirements to participate?
10. If your agency was collecting before the pilot, how has your drug take-back collection changed since you joined the pilot (Collect more? Different protocol?)
11. How, if at all, does participating affect the daily duties and routines of your agency?
12. What has been the biggest challenge in participating?
13. Have you experienced any gaps in support? (e.g., from the VT ADAP or Lamoille County Sheriff's Department?)
14. What precautions are in place to prevent diversion of the drug collected through the pilot program?
15. What has been the best thing about participating?
    - What do you think might motivate other law enforcement agencies to join a similar program?
16. Have you promoted the program at all? If so how? (e.g., with outreach or education to your community or specific groups in the community)
17. Is there anything else you want to tell me about the drug take-back pilot or your experience?

Appendix E: Collection Data

			Collection Data Year 1													Calculations for Year 1		
County	Department	Aug	Sep	Oct DEA Day	Nov	Dec	Jan	Feb	Mar	Apr DEA Day	May	Jun-Aug			Sep	Collection subtotal by Department	Collection subtotal by county	PER CAPITA Collection subtotal by county
Addison	Addison County Sheriff's							12.54			45.18				111.19	57.719	199.247	199.247
Addison	Middlebury Police Department			63.058					70.29		8.18				22.96	141.528		
Lamoille	Lamoille County Sheriff's Dept.	32.87	21.6		16.36	26	13.28	12.04	26.15	26.07	20.83		23.49	15.48		201.296	378.692	0.015472605
Lamoille	Morristown Police Department		46.62		30.86		25.63			29.33			21.5	23.46		177.396		
Orleans	Orleans County Vermont Sheriff's		74.5			10.33	15.72	19.16	15.76	19.83				67.04	22.08	222.346	349.855	0.012847674
Orleans	Newport Police Department		34.82			65.04				27.65					77.46	127.509		
Windsor	Hartford Police Department		85.34			13.01	31.43	16.53	27.74	17.92	35.63			64.97	20.82	292.571	1036.052	0.018282195
Windsor	Windsor Police Department		71.47			13.18	11.88			49.13	10.24			39.44	20.01	195.342		
Windsor	Springfield Police Department		104.6			29.5	10.32	6.942	22.44	10.8	11.91			55.82	43.5	252.367		
Windsor	Ludlow Police Department		24.41			8.73	3.716		6.8		8.4			10.14	13.85	62.196		
Windsor	Royalton Police Department		36.93											18.48		55.41		
Windsor	Chester Police Department		36.31			7.004	6.6		13.96	12.88	9.16			11.13	5.81	97.044		
Windsor	Woodstock Emergency Services		31.69			20.15			11.16	12.37					44.19	75.37		
Windsor	?						5.752									5.752		
Windham	Windham County Sheriff		53.49			39.18										92.667	260.788	0.005858693
Windham	Wilmington Police Department					27.98		8.138								36.118		
Windham	Brattleboro Police Department					33.46		98.54								132.003		
Franklin	Saint Albans Police Department		195.3			29.39		122.8			98.01			29.38		474.859	514	0.0107653
Franklin	?		21.59													21.59		
Franklin	Swanton Village Police Department							17.55								17.551		
Chittenden	Williston Police Department			97.4		129.6					181.8					408.75	2803.61	0.017909291
Chittenden	South Burlington Police Station			164.72		73.27	36.12	65.69	21.27		34.2			127.7	35.46	522.981		
Chittenden	Hinesburg Police Station			93.62			7.504								50.04	101.124		
Chittenden	Richmond Police Station			44.72		18.68		23.55								86.951		
Chittenden	Essex Police Department			94.63		157.9		30.51						111.2		394.184		
Chittenden	Winooski Police Station			229.65		25.8			52.86		93.98			90.78		493.07		
Chittenden	Burlington Police Station			95.23		55.91	87.66		75.52		16.2			69.22	48.79	399.742		
Chittenden	Shelburne Police Department			96.52		73.27		15.05	38.15		32.63			52.4	36.98	308.018		
Chittenden	Milton Police Department													43.73	36.17	43.73		
Chittenden	?								12.6		32.46					45.06		
Orange	Orange County Sheriff			29.54		10.78			70.64	30.91	122			95.91		359.778	359.778	0.012433578
Washington	Barre City Police Department			128.76			74.95		41.26					82.02		326.989	855.988	0.014378137
Washington	Washington County Sheriffs Office			86.349		18.73	53.84	21.33						52.49	5.69	232.742		
Washington	?			103.92		25.49	10.47	8.992	13.69							162.568		
Washington	?						36.59	23.29								59.879		
Washington	Barre Town Police Department													34.31		34.31		
Washington	Northfield Police Department													32.33		32.33		
Washington	Montpelier Police Department													7.17	35.69	7.17		
Caledonia	St Johnsbury Police Department			74.457		53.01										127.467	305.959	0.009797899
Caledonia	Caledonia County Sheriff			47.217		26.76	11.1		39.18	32.89				21.35		178.492		
Bennington	Bennington County Sheriff's			74.087							140.2					214.257	900.413	0.024253549
Bennington	Bennington Police Station			154.82			119.3			156.5						430.575		
Bennington	Manchester Public Safety Facility			64.741			44.86			52.75						162.346		
Bennington	Winhall Police Department						37.74				55.5					93.235		
Rutland	Rutland County Sheriff's Office			866.04		149.7	46.76	47.54	44.52	98.55	139.1			136.4	14.35	1528.603	1726.496	0.028008436
Rutland	Castleton Police Department			66.275		37.16				47.42				27.3		178.155		
Rutland	?										19.74				68.22	19.738		
Essex	Essex County Sheriff's Department						24.01									24.012	24.012	0.003807802
Grand Isle County	Grand Isle County Sheriff's								4.18							4.18	4.18	0.000599713
Monthly collection subtotal (lbs)		32.87	838.7	2675.8	47.22	1179	715.2	550.2	608.2	625	1115	0	44.99	1320	713.26			
Total collection (lbs)																9719.07		

Appendix F: Miles Traveled Data

Thick border indicates combined total for multiple counties			Collection Data Year 1													Calculations Year 1
County	Jul	Aug	Sep	Oct DEA Day	Nov	Dec	Jan	Feb	Mar	Apr DEA Day	May	Jun-Aug			Sep	County subtotal
Addison	N/A			0					195							195
Lamoille		N/A	6		7		8			191	194			346		752
Orange				113		?			190	191	194			389		1077
Windsor			0			?	198	82.3	190	191	194			389		1244.333333
Washington				0		96	66	82.3	190					389		823.3333333
Windham			181			96		82.3								359.3333333
Franklin			83			53.5					159			238		533.5
Chittenden				143		53.5	88	152	145		159			238		978.5
Caledonia				151		64.5	56.3		132	126				346		875.8333333
Orleans			78			64.5	56.3	81	132	126				346		883.8333333
Essex							56.3									56.33333333
Bennington				0			98			195	198					491
Rutland				193		197	98	196	195	195	198			197		1469
Essex																0
Grand Isle									145							145
DEA for disposal					103											102.6
Monthly subtotal miles	0	0	348	600	110	625	725	676	1514	1215	1296	0	0	2878		9986.6
Total miles																**9986.6**

Appendix G: Law Enforcement Interview Results

Questions	Summary of Responses
When did your agency start collecting unwanted/expired drugs? Was it before the pilot began?	Mixed answers. Some started collection before/during/after pilot.
If so, for how long did you collect before the pilot began? How much did you collect before the pilot began? At what frequency did you collect (bi-annually, annually, etc.)?	One said they had 33 boxes at location for the first pilot pickup because only a handful of other locations had drop boxes.
If not, why were you not collecting before?	Concerns about opioids; Didn't need to since PD's in area were collecting.
What were the main considerations/concerns when deciding whether to join the pilot?	Fear of diversion; Sheriff Department staff to pick up at PDs; Most had no concerns.
Were these concerns addressed? How?	PDs come to them; only as needed.
What advice would you give to other law enforcemetn agencies before they start/join a drug take-back program.	Important to consider time needed to properly manage.
Why did your agency ultimately decide to join/not to join?	Two times per year was not enough. Pilot helped with storage and standardized the box size. With more promotion/public awareness about drug disposal were getting more and more drugs.
Do you think that was the right decision? Why?	All said yes.
Do you see drug take-back as part of the role/responsibility of law enforcement?	All said yes. Multidisciplinary approach needed to tackle drug abuse. Responsibility to community (e.g., help elderly safely remove meds from home so they aren't a target).
What was the process to join the pilot program like? Easy or difficult? In what ways?	All said easy.
Has participating in the program been easy or difficult? In what ways?	Easy. Process is good. Smooth. Relatively low mainenance.
What is your specific role in participating in the pilot?	Mixed (e.g., Shriff coordinating, Deputy implementing, Administrative assistant supporting).
Can you tell me about the labor/time required from you and others who play a role in your agency's participation?	Ranged from 2-30 hours/month.
Can you tell me about the storage/logistical requirements to participate?	Storage no longer an issue.
If your agency was collecting before the pilot, how has your drug take-back collection changed since you joined the pilot (e.g., collecting more? Different protocol?)	New protocols, perhaps upward trend in collection amounts.
How, if at all, does participating affect the daily duties and routines of your agency?	They provide boxes/bags. Better to standardize.
What has been the biggest challenge in participating?	At first didn't get schedule in advance; Blister packs choke the chute; waiting for PD's to pack their boxes (time); Keeping out needles; keeping out liquids (where relevant).
Have you experienced any gaps in support? (e.g., from the VT ADAP or Lamoille County Sheriff's Department?)	Mostly no gaps. One might like higher hourly rate.
What precautions are in place to prevent diversion of the drug collected through the pilot program?	Secure facility; two law enforcement; evidence locker with alarm; gather drugs same day LCSD picking up; Program protocol at large.
What has been the best thing about participating?	Program removes from evidence lockers; spreads out the effort with more collection locations in state; Provides poundage and handle weighing.
What do you think might motivate other law enforcement agencies to join a similar program?	(Same as answer to biggest benefits)
Have you promoted the program at all? If so how? (e.g., with outreach or education to your community or specific groups in the community)	Radio PSA; Website; FB; Info out to pharmacies; Ad with elderly group; signs during drug take-back days; Ad in newspaper.
Is there anything else you want to tell me about the drug take-back pilot or your experience?	Sharps incorrectly deposited in drug take-back bin is most frequently mentioned issue; Vendor prohibiting liquids; Concerns over secrecy of program schedule/activities (risk of diversion); Spread of population in rural area; Future issue: as Rx supply in homes goes down addicts will turn to other sources.

9. Endnotes

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[iii] Hinck, J.E., et al., 2009. Widespread occurrence of intersex in black basses (Micropterus spp.) from U.S. rivers, 1995-2004. Aquatic Toxicology 95, 1: 60-70.
[iv] Bicket, M.C., et al., 2017. Prescription Opioid Analgesics Commonly Unused After Surgery, JAMA Surgery, 152(11): 1066.
[v] Bose, J., et al., 2016. Key Substance Use and Mental Health Indicators in the United States: Results from the 2015 National Survey on Drug Use and Health, Substance Abuse and Mental Health Services Administration (SAHSA), https://www.samhsa.gov/data/sites/default/files/NSDUH-FFR1-2015/NSDUH-FFR1-2015/NSDUH-FFR1-2015.pdf.
[vi] Centers for Disease Control and Prevention (CDC), Drug Poisoning Mortality: United States, 2002-2014, https://blogs.cdc.gov/nchs-data-visualization/drug-poisoning-mortality/.
[vii] National SAFE KIDS Campaign (NSKC), "Childhood Injury Fact Sheet," National SAFE KIDS Campaign, Washington, D.C., 2004.
viii U.S. Government Accountability Office, 2017. Preventing Drug Abuse: Low Participation by Pharmacies and Other Entities as Voluntary Collectors of Unused Prescription Drugs, Report to Congressional Requesters, https://www.gao.gov/assets/690/687719.pdf.
[ix] Aleena Farooq, 2015. Concepts of Ethnography and Program Evaluation explained, https://www.slideshare.net/AleeenaFarooq/ethnography-and-program-evaluation.
[x] Estimated population with a radius around each police station using Free Map Tools (https://www.freemaptools.com/find-population.htm).
AUTHOR NOTE: For the 5 and 10 mile estimates, some radii overlapped or extended into different states. We estimated the population within these areas and subtracted it from the total to avoid counting individuals twice
[xi] AUTHOR NOTE: 7,185,727 prescriptions dispensed in VT yearly x 42% unused x 16 grams per prescription x 0.0022 lbs per gram.
[xii] Law, Anandi V., et al. 2015. Taking Stock of Medication Wastage: Unused Medications in US Households. Research in Social and Administrative Pharmacy, vol. 11, no. 4, 2015, 571–578.
[xiii] The Henry J. Kaiser Family Foundation, 2018. Total Number of Retail Prescription Drugs Filled at Pharmacies. www.kff.org/health-costs/state-indicator/total-retail-rx-drugs/?currentTimeframe=0.
AUTHOR NOTE: The number of prescriptions dispensed was based on data from a from IQVIA's National Prescription Audit database.