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Contents

Contents 2
Exec Summary 3
Target Problem 5
Lowell's SPI Community Opioid Outreach Program (CO-OP) 9
Project Plan 9
Strategies by Goal 9
Goal 1: Increase Capacity through Strengthened Partnerships 9
Goal 2: Increase access to treatment for overdose survivors and 15
Goal 3: Decrease arrest rates of those enrolled in CO-OP compared to those not enrolled 15
Goal 4: Reduce the effects of trauma experienced by children impacted by opioid overdose 20
Goal 5: Inform research, policy, and future programs for adults and children impacted by opioid use disorder in Lowell and other cities struggling with similar issues 21
Analysis and Evaluation 23
Role of the Research Partner and Adaptations to the Plan 23
Research Questions, Methods, and Results by Goals 25
Partnerships have been Strengthened 27
Processes have been Developed and Honed over Time or Required Persistence and Patience 33
Characteristics of the CO-OP Clients 38
Increased Access to Information, Resources, and/or Treatment 42
Clients are Positive About their Engagement with CO-OP 45
Clients Exhibit Sense of Agency 46
The CO-OP has been Effective at Getting the Word Out about the CO-OP 46
Decline in Crime often related to Drug Use between 2016-2020 47
Increased CO-OP Team Encounters coincides with a Decrease in Law Enforcement Encounters 51
Understanding of Challenges has Evolved and Gaps have been Identified 55
Summary of Results 61
Important Lessons Learned 62
Sustainability and Conclusion 65
Lowell CO-OP Success Stories 69
References 71
Appendices 72

Executive Summary

The city of Lowell, Massachusetts, has experienced high rates of drug abuse for decades. This history left Lowell vulnerable to the opioid crisis that has recently arisen across the nation. Heroin and other opioids have always been a concern, but the last five years have seen the pervasiveness of opioid use rise to a public health crisis. While the Lowell Police Department (LPD) and other city agencies and nonprofits have long prioritized addressing drug abuse, the nature and size of the opioid crisis in Lowell warrants an innovative approach.

The Lowell SPI Community Opioid Outreach Program (CO-OP) was developed by the LPD, Middlesex District Attorney's Office, the Lowell Health Department (LHD), Lowell House Addiction Treatment and Recovery (Lowell House), and the Mental Health Association of Greater Lowell (MHA). Initially, the CO-OP consisted of an LPD officer and an outreach worker from Lowell House. During the early stages of the program, the CO-OP added members from the Lowell Fire Department (LFD), Trinity Emergency Medical Services (Trinity EMS), and LHD. The CO-OP initially made contact with survivors of opioid-related overdose within 24-48 hours and connected them or their families to immediate treatment and other necessary services. As the CO-OP gained experience and a foothold working within the Opioid Use Disorder (OUD) community, activity broadened to include outreach to members of the community as a whole and a broad spectrum of services large and small.

Understanding the importance of collaboration across the Lowell community, the CO-OP has worked diligently to make and maintain relationships with key internal and external partners and stakeholders. Partnerships are a main reason as to why the CO-OP has been successful in their intensive care coordination approach for clients and closing the gaps in the treatment and recovery process.

The three main pillars of work engaged in by the CO-OP are post-overdose follow-ups, community engagement, and educational outreach. SPI funding was intended to support *post-overdose follow-up* and this remains the top priority; however, the work of the team evolved to include prevention efforts as well, involving outreach to community members who have not necessarily experienced an overdose. In addition to expanding the client population, the CO-OP also broadened the range of services that it offers to clients.

Community engagement is carried out, as much as possible, through in-person interactions. The CO-OP visits encampments to touch base with residents, build rapport, and offer support, regardless of the nature of the need. The CO-OP also connects with individuals who may be in need of support in the Downtown neighborhood and local parks and green spaces where people are known to congregate.

The CO-OP's *educational outreach* efforts include frequent presentations in classrooms about their work, general substance use education, and local support systems. The CO-OP also provides educational programs to local partners, such as the Department of Children and Families, on topics such as local resources, Narcan, and youth substance use.

Results

Partnerships have been strengthened within and between the CO-OP team's organizations. The CO-OP has also experienced success in building rapport and trusting relationships within Lowell's OUD community. The keys to this success were identified as having a physical presence in the community; assisting clients with at-the-moment needs, such as getting a new ID or socks; and establishing judgment-free communications with clients. The CO-OP increased access to information, resources and/or treatment for those affected by the opioid epidemic. The CO-OP has worked with organizations such as shelters, hospitals and detox centers in order to meet client needs and to provide the CO-OP with better information about the range of clients' service interactions. They have been effective in getting the word out about the team what they can do.

Clients credited the CO-OP with helping them enter detox, find jobs, facilitate connections with other services (e.g., Life Connection Center), secure beds in a shelter or gain access to other housing, receive official identification cards, and obtain needed clothing. CO-OP clients exhibited agency as they strive to take control of their lives.

The COVID-19 pandemic and the state and institutional responses greatly impacted the work of the CO-OP team beginning in mid-March 2020. At this time, with the single exception of the LFD, each organization comprising the CO-OP mandated work-at-home policies or reassigned CO-OP team members to other tasks related to the pandemic. These decisions were made independently by each organization. The result drastically reduced the CO-OP's presence at a time when the community was experiencing great stress. The unprecedented number of client interactions that occurred in the time immediately following the CO-OP team members' return to the field illustrated just how badly their presence was missed.

When examining encounters with LPD, service providers, and the CO-OP, the increase in CO-OP encounters coincides with a decrease in law enforcement encounters. Additionally, there was an overall decline in crimes typically related to drug use.

The CO-OP solidified an understanding of challenges and gaps within the OUD landscape in Lowell. Certain themes found across the lives of clients indicate a need for: more funding to increase the number of and access to treatment and recovery programs; an increase in and access to supportive housing; a continuation and broadening of the LPD's clinical co-responder approach; more accessible and tailored positive conflict resolution programs starting at the prevention stage; trauma informed approaches in programming, schools, and policing; and attention to dismantling root causes of violence and stigma.

Lastly, after a peak in 2016 (79), fatal overdoses declined (50) by 36.7% decrease in 2020. Additionally, after a peak in 2018 (811), non-fatal overdoses decreased (489) by 39.7% in 2020.

Lessons Learned

The importance of *developing relationships* within the OUD community was the most significant insight. Success with clients begins with that relationship, which is built upon a trusting and caring rapport, understanding that clients have different needs at different times, and understanding that recovery is not a linear process.

Because of the wide range of issues faced by the client community, it is critical to *create an outreach team that comprises many sectors* (law enforcement, recovery, public health, etc.) and skill sets (mental health intervention, Narcan training, etc.).

It took time to determine how *HIPAA requirements* did or did not restrict the way the different organizations comprising CO-OP were able to discuss clients within the CO-OP setting.

The multidisciplinary nature of the CO-OP is critical to its effectiveness, led to some challenges regarding team culture, procedures and protocols. It is important to *use MOUs to clearly define roles and responsibilities* for each team member, including limits on the scope of care, as well as mapping out a chain of command and identifying appropriate leadership, both within the team and how the team relates to their home organization

It is important to *create a data collection process that is not overly burdensome for team members, but also provides critical information* to understand the client population, detect trends and identify gaps in treatment, measure success, and document the course of interactions with individual clients.

Create crisis plans ahead of time. The COVID pandemic made clear the need to use a time of stability to create contingency plans that allow outreach to continue while maintaining health and safety for team members and clients. Create a set of standard operating procedures for working in the field under different circumstances (such as the pandemic). Set in place strong communication channels that will not break if a link is missing (for instance, the CO-OP had trouble obtaining police overdose data when the police CO-OP member was assigned to other duties during the pandemic).

Continuous reflection/analysis of processes. Step back and analyze process to ensure the functioning of the team works, and that the host organizations are aligned in terms of goals, expectations, and resource support.

Partner and target population needs. Compassion fatigue could be alleviated through structured support beyond self-care (e.g., an EAP) and something about upstream prevention. Unexpected client challenges (e.g., fear of police, presence of young child on site) may require coordinated adjustment of approaches to service delivery.

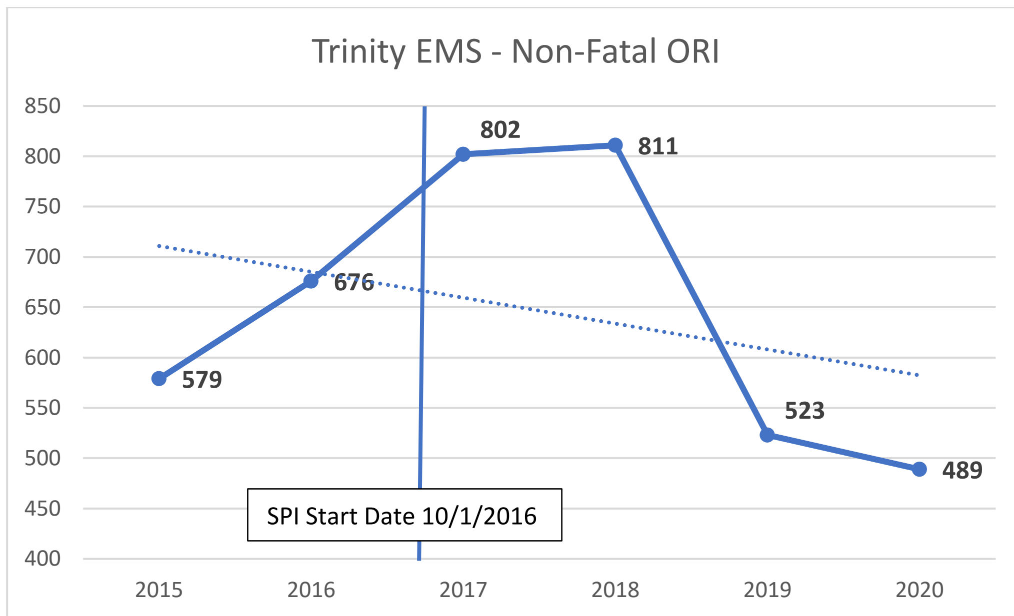
Secure adequate transportation. Vehicle availability for the team was a long-running concern. A vehicle was necessary to transport team members efficiently around the city to minimize time in transit. A vehicle also allowed for the occasional transport of a client to a service they might require.

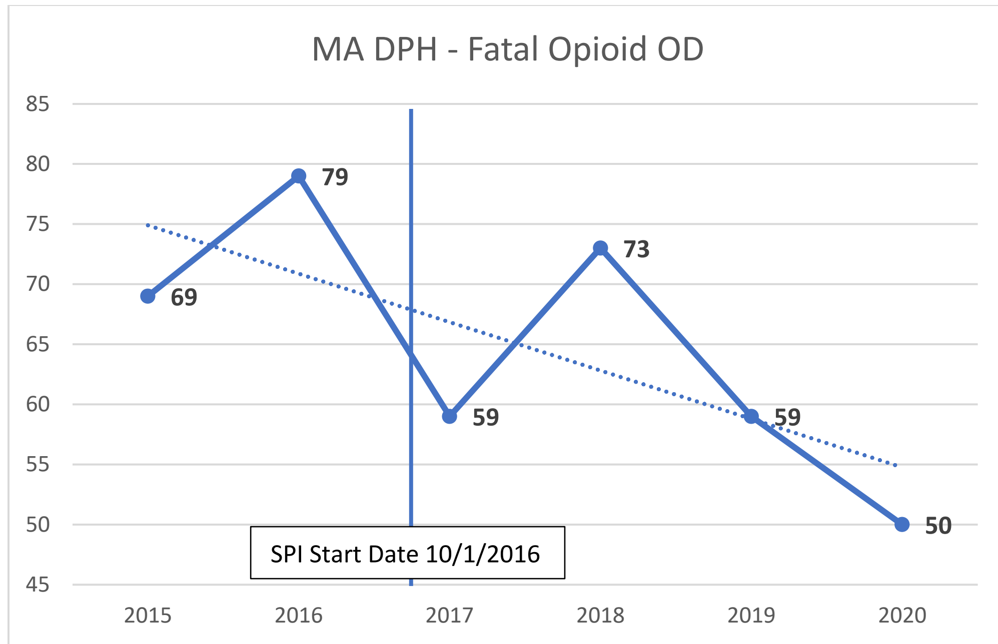
Target Problem

The city of Lowell is an urban community of over 111,000 residents in northeastern Massachusetts. Despite the best efforts of law enforcement and other City agencies, high rates of drug abuse have persisted in Lowell for decades. This has made Lowell particularly susceptible to being affected by the opioid crisis that has overtaken the nation in recent years. While heroin and other opioids have always been a serious concern, over the last five plus years this issue has transformed into a full public health crisis. At the time of the writing of this grant proposal, according to data from the Massachusetts Department of Public Health, the number of opioid-related deaths in the state increased 64% from 668 in 2012 to 1,099 in 2014. While the opioid

use disorder and overdose epidemic has affected all of Massachusetts, it has been particularly devastating in Lowell. According to Trinity Emergency Medical Service (Trinity EMS), the City of Lowell's contracted emergency medical services provider, in 2015, there were 579 opioid-related incidences (ORIs) in the city. After a high of 811 non-fatal ORIs in 2018, there were 523 in 2019 and 489 in 2020. Between 2015 and 2020, this is an overall decrease of 15.5%. According to the latest data from the MA Department of Public Health, fatal opioid-related overdoses have decreased 27.5% between 2015 and 2020; however, spiked at 79 in 2016 and 73 in 2018.

The Lowell Police Department (LPD) first documented a non-fatal fentanyl related overdose on September 20, 2007 as a result of a diverted fentanyl patch prescription. The earliest recorded cause of death that included the presence of fentanyl was in 2009.





While substance use disorder takes a huge toll on the individuals affected and their families, it also affects the community as a whole. Evidence suggests that much of the property crime such as burglaries, shoplifting incidents, and car breaks in Lowell is driven by individuals struggling with substance use disorder who use crime to support their habit. . Occasionally, desperate people will commit more serious offenses, such as armed robberies or home invasions. The LPD reviewed the Board of Probation (BOP) records[1] of 55 individuals who died of opioid-related overdoses in 2015.[2] Their criminal histories included a combined 1,108 adult charges, or an average of 24 charges per person among those who had criminal histories. Unsurprisingly, 70% of these individuals had drug charges on their records, 57% had property charges and 46% were charged with violent crimes.

In addition to public health and safety, there is an element of the opioid epidemic that is often overlooked: its effect on children. It is not uncommon for LPD officers who respond to overdose calls to find evidence of the presence of children at the scene. In many cases, grandchildren and minor siblings of overdose survivors witness these events. Of the 55 individuals who died from an opioid-related overdose in 2015, at least 47% had children.[3] Children are at risk for experiencing trauma related to their loved one's overdose. According to the American Psychological Association, almost all children experience acute distress immediately after exposure to a traumatic life event.[4] Most return to prior levels of functioning, however, a substantial minority develops ongoing distress that warrants clinical attention and the necessary support from family and trusted adults often unavailable to children whose parents have overdosed.

[1] BOP records contain an individual's entire criminal history in Massachusetts
[2] This includes the 46 fatal overdoses in 2015 and 9 that occurred through mid-February 2016 when the analysis was conducted.
[3] These numbers likely undercount both the number of parents who fatally overdosed and the total number of children of fatal overdose victims. Information was estimated from obituaries of deceased overdose victims, but obituaries could not be found for all victims.
[4] http://www.apa.org/pi/families/resources/children-trauma-tips.aspx

The LPD has long recognized the importance of implementing data-driven initiatives and evidence-based strategies to address complex issues. In fact, in order to analyze this problem, data was compiled from a variety of sources, including internal crime data, BOP records, the Massachusetts Department of Public Health, Trinity EMS, and academic journal articles. The LPD also has a long history of working with academic institutions as research partners who assist in developing and evaluating department initiatives.

The LPD and its partners developed a two-pronged approach to dealing with the opioid epidemic featuring an intervention component for survivors of opioid-related overdose and an early intervention program for their children. This comprehensive project was developed by the LPD, Middlesex District Attorney's Office, the Lowell Health Department (LHD), Lowell House Addiction Treatment and Recovery (Lowell House)[5], and the Mental Health Association of Greater Lowell (MHA). The intervention program, known as the Community Opioid Outreach Program (CO-OP), first consisted of an LPD officer and an outreach worker from Lowell House. The team later expanded to include the Lowell Fire Department (LFD), Trinity EMS, and LHD. The CO-OP Team initially made contact with survivors of opioid-related overdose within 24-48 hours and connected them or their families to immediate treatment and other necessary services. This expanded to active overdose prevention outreach into communities where people with opioid use disorder lived and/or congregated. The early intervention aspect of the program, Project CARE (Child Assessment Response Evaluation), while adapted over time, first involved MHA then Vinfen, and focused on children, grandchildren and minor siblings of survivors of opioid-related overdoses to fast track them to a host of services including counseling. The entire approach to the problem was created after reviewing research and lessons learned from other cities in response to drug-related issues.

[5] Lowell House, Inc. formally rebranded and changed their name to Lowell House Addiction Treatment and Recovery during the grant period.

Lowell's SPI Community Opioid Outreach Program (CO-OP) Project Plan

The overarching goals of the CO-OP are to decrease the number of fatal and non-fatal overdoses in comparison to baseline data. To accomplish this, five secondary goals were established. These include increasing the capacity of the LPD and public and private health agencies to address the opioid crisis; increase access treatment; decrease arrest rates of those enrolled in CO-OP; reduce the effects of trauma experienced by children impacted by the opioid crisis; and inform research, policy, and future programs for adults and children impacted by opioid use disorder addiction in Lowell and other cities struggling with similar issues. To accomplish this, the CO-OP was tasked with following up with opioid overdose survivors, connecting them with necessary services, building relationships with various resources, educating families, conducting outreach to homeless encampments and connecting youth who have been impacted by the opioid epidemic to appropriate services.

Strategies by Goal

Goal 1: Increase Capacity through Strengthened Partnerships

As part of its mission, the CO-OP Team has worked diligently to make and maintain relationships with key partners and stakeholders, both internal and external to the Lowell Police Department (LPD), CO-OP agencies, and the community. Partnerships are a main reason as to why the CO-OP Team has been successful in their intensive care coordination approach for clients and closing the gaps in the treatment and recovery process.

A: Internal Key Partners

The CO-OP Team is comprised of disparate partner agencies with different institutional goals, structures, and cultures with all agencies coming together to achieve the mission of the CO-OP. Each CO-OP partner agency has agreed to specific roles and responsibilities as outlined in an MOU that was updated in March 2021.

The partnerships within the CO-OP have grown since its conception. Written into the SPI 2016 grant, the LPD, Lowell House Addiction Treatment and Recovery (Lowell House), and Lowell Health Department (LHD) agreed to supervise staff members that would make up the CO-OP Team. The LPD dedicated one City funded police officer, Lowell House dedicated one Substance Abuse Specialist through SPI grant funding, and the LHD dedicated two part-time Clinical Recovery Specialists through SPI grant funding. Between the submission of the grant application and award, the Lowell Fire Department (LFD) dedicated one full-time, City funded firefighter to the CO-OP. In April of 2017, Trinity EMS, Lowell's 9-1-1 provider, dedicated two part-time EMTs, paid for by Trinity EMS, to the CO-OP.

B. Team Roles and Responsibilities

Lowell Police Department (LPD): The Public Safety Research and Planning Director and Program Manager were involved throughout the entirety of this project. LPD serves as the fiscal

agent and provides overarching oversight by the Superintendent through the Research and Development Office.

Lowell Fire Department (LFD): The LFD added a full-time City funded firefighter to the CO-OP in 2016. The mission of the LFD is to improve the quality of life in the City of Lowell by providing fire protection, emergency response services, fire prevention, and activities with the public educational department. Their goal is to protect all citizens, their property and the environment from natural and man-made disasters. LFD joined the CO-OP as a partner agency in 2016.

Lowell House Addiction Treatment and Recovery (Lowell House): Lowell House, originally established as Lowell House Inc., has been providing high quality, accessible and affordable addiction services and related supports to the Greater Lowell community since 1971. Lowell House was a founding agency partner on the CO-OP in 2016.

Lowell Health Department (LHD): The LHD joined the CO-OP as a partner agency in 2017 and has provided programmatic oversight of the CO-OP since 2018 through the Substance Abuse Coordinator and the CO-OP Supervisor. The LHD coordinates partner agency efforts in pursuit of shared goals. The LHD acknowledges the independence of each partner agency, their contributions and policies, while organizing these individual agency efforts into a comprehensive community approach.

Trinity Emergency Medical Services (Trinity EMS): Beginning in 2017, Trinity EMS has provided one full time and then two part time EMTs to the CO-OP Team. Their Director of Communications/Operations participates as their supervisor. Trinity EMS is an experienced 9-1-1 emergency service provider and an EMS Training and Education Resource. Trinity EMS has three decades of experience working with the Lowell community and beyond and has held the 9-1-1 contract for the City of Lowell since 1992.

Mental Health Association of Greater Lowell (MHA): MHA was a partner in both Project CARE and the CO-OP. A mental health clinician worked as part of the CO-OP, providing outreach and direct services to Lowell residents affected by opiate overdose with an emphasis on situations in which children are present and/or there are behavioral health needs for any of the people affected by the overdose. As part of Project CARE, MHA developed a crisis intervention strategy for the child or children of the overdose survivors. MHA was absorbed by Vinfen in 2019. The Project CARE Clinician resigned after merger and the Clinical Director resigned within the year.

Research and Evaluation Team: University of Massachusetts Lowell (UML): Center for Community Research & Engagement (CCRE), Doctors Robin Toof, Wilson Palacios, Melissa Morabito and Program Manager Toby Ball and *Suffolk University*: Dr. Brenda Bond provided expertise in program evaluation, substance use disorder and criminal justice, public health, and epidemiology.

Lowell CO-OP Supervisors: In 2018, the CO-OP Supervisory Team was created. The Supervisory Team was initially comprised of grant management staff, direct agency supervisors and/or managers of assigned CO-OP team members, and other management staff such as the

LPD and LFD Chiefs. The Supervisory Team meets monthly to identify ways to best support the CO-OP team members, make executive decisions, share ideas, review data, and discuss needs areas. As members of the Supervisory Team, the influence of each agency carries the same weight, regardless that the LPD has SPI grant oversight and the LHD has programmatic oversight of the CO-OP. In 2019, grant research partners were invited to attend. Since the meeting's conception, attendance from the following has been documented: LPD Chief, LPD Family Services Unit Lieutenant, LPD Program Manager, LPD Public Safety Research and Planning Director, LFD Chief, LFD EMS Coordinator, LHD Director, LHD Substance Abuse Coordinator, LHD CO-OP Supervisor, Trinity EMS Director of Operations/Director of Operations and Communications, Lowell House Director of Outreach, Lowell House Director of Ambulatory Services, and UML CCRE.

Smart Policing Initiative (SPI) Working Group. This group consisted of the LPD Public Safety Research and Planning Director and Program Manager, LHD Substance Abuse Coordinator and the CO-OP Supervisor, Lowell House Clinical Supervisor, and UML and Suffolk researchers. This group met periodically throughout the grant period to co-develop processes, procedures, and data collection methods and tools, and to problem solve issues and discuss research results. They also met monthly with CNA Analysis and Solutions (SPI training and technical assistance provider) team members and subject matter expert Bruce Johnson, CEO Nicasa Behavioral Health Services.

Formation of the Team

The LPD was awarded the SPI grant in 2016 and supported the work of the CO-OP in several ways. The grant funded Lowell House, a community partner of the CO-OP team, to support the organization's continued efforts to contribute a full-time team member. The SPI grant also initially funded two part-time Clinical Recovery Specialists (CRS), which later became one full-time CRS, through the LHD. The role of the CRS was to provide case management and wrap-around follow-up services to clients identified by the CO-OP outreach team. Additionally, the SPI grant supported Project CARE by providing funding to MHA to dedicate staff to monitor the Project CARE referrals and to work with the CO-OP to provide follow-up to those referrals in identifying children affected by the opioid crisis and connecting them with treatment. Finally, the SPI grant funded the research partnership with the UML and Suffolk University. The research team analyzed and evaluated the CO-OP and Project CARE, identifies processes that needed revision as well as processes that were working, and provided guidance as a key stakeholder in the project.

From the initial composition of a police officer from the LPD and an outreach worker from Lowell House, the CO-OP team expanded to include a firefighter from the LFD in 2016 and two part-time EMTs from Trinity EMS in April of 2017. Also in 2017, the LHD hired a Substance Abuse Coordinator through another grant awarded to the LPD. The Substance Abuse Coordinator was tasked with overseeing the CO-OP, in addition to managing the daily responsibilities of the LHD's Substance Abuse and Prevention Division.

As the CO-OP expanded, partners expressed the need for each team member to have clearly defined roles and responsibilities, including limits on the scope of care. Partners also felt that there needed to be clarification about the chain of command and CO-OP leadership. In January

2018, the Substance Abuse Coordinator convened SPI grant management staff and agency supervisors for the CO-OP for the first Lowell CO-OP Supervisors meeting. These monthly meetings were a forum to highlight the work of the CO-OP, identify needs, brainstorm resources and supports, and agree upon policies and procedures.

Also in January 2018, oversight of the day-to-day operations was transferred to the LHD, as the LPD Superintendent saw the opioid epidemic as a public health crisis, and felt that the local public health agency was best suited to oversee the CO-OP. The LHD had the capacity to supervise the day-to-day operations of the CO-OP through the Substance Abuse Coordinator, who managed the Substance Abuse and Prevention Division.

In March 2018, two part-time Clinical Recovery Specialists (CRS) were hired to address the case management component of completing intakes, creating treatment plans, making referrals to services (including substance abuse and mental health treatment, medical, housing, educational, employment, etc.), and engaging clients throughout the treatment and recovery process.

The Middlesex Sheriff's Office invited the CO-OP team to use an office in their Lowell Community Counseling Center, located in downtown Lowell. This move gave the CO-OP a base located near other local services working with the substance use disorder and homeless communities within the city.

Changes to the CO-OP team

As the CO-OP team grew and evolved, the CO-OP Supervisory Team agreed that CO-OP needed full time, in-office support, which the Substance Abuse Coordinator, who was located outside of the CO-OP office and had other responsibilities, could not offer. The Lowell City Council approved creating and funding a full-time CO-OP Supervisor position to support CO-OP staff and oversee the day-to-day operations of the CO-OP. The CO-OP Supervisor began working in July 2018 to provide daily support and continue to implement structure and decisions made by the Supervisory Team.

The late summer and fall of 2018 saw changes in the CO-OP team personnel. In August, Trinity EMS replaced the two part-time EMTs with one full-time EMT. In September and October, both CRS resigned their part-time positions on the CO-OP. This situation was discussed with the CO-OP and CO-OP Supervisory Team, and the CO-OP agencies agreed to merge the two part-time CRS positions into one full-time position, a decision to which Lowell's City Council agreed. It was very difficult to fill this position due to the competitiveness of the job market in this field. Additionally, it was important to the CO-OP to ensure the person that filled this position be highly qualified and provide a seamless transition into the CO-OP; therefore, it was vacant for a long time. Other members of the CO-OP -Lowell House in particular- stepped up to help clients access detox and long-term treatment facilities, as well as carry out other duties previously handled by the CRS. The CO-OP felt that Lowell House had the capacity and the access to resources to serve CO-OP clients to function as the home institution for the CRS position, and the team subsequently requested a transfer of the position from the City to Lowell House. Although recognizing the resources available to Lowell House made it a good choice, the City felt the CRS was an important position to maintain in order to expand the LHD's Substance Abuse and Prevention Division and its efforts at combatting the opioid crisis, thus the position

stayed with the City. In March 2020, three weeks before the COVID-19 pandemic hit Massachusetts, a full-time CRS was hired.

In March 2020, the Lowell House CO-OP member became trained in the distribution of Narcan. She began distributing Narcan to the community and eventually joined Trinity EMS's assigned CO-OP member in offering free training sessions to either groups or individuals in the Lowell community.

In November 2020, the full time Trinity EMS EMT left the team and was replaced by two part-time Trinity EMS EMT's, per request of Trinity EMS. This change resulted in the ability to have an EMT available for outreach every day, and in more consistent team coverage in terms of days off and vacation coverage.

C: External Key Partners within the Lowell CO-OP Agencies

The CO-OP has several external key partners within the CO-OP agencies. Relationships with external key partners have enhanced the work of the CO-OP in many ways, including enhancing community education, disseminating information, and streamlining data sharing and client referral processes.

Within the LPD, the CO-OP works frequently with the Crime Analyses and Intelligence Unit and the Police Academy. Crime Analysts provide opioid-overdose statistics and other pertinent data to enhance the work of the CO-OP. The CO-OP presents regularly at the Police Academy regarding community policing, the opioid epidemic and dealing with individuals with substance use disorder.

Within the LHD, the CO-OP maintains communication with the Syringe Collection Program Coordinator and Community Health Coordinator. The CO-OP team members and Syringe Collection Program Coordinator regularly exchange information about encampments, including new residents, increases in residents at a location, new encampment locations, and encampment abandonment. The CO-OP calls the Syringe Collection Program Coordinator with pick-up requests when they see discarded syringes in the community. The CO-OP works with the Community Health Coordinator to host educational tables at LPD and other local outreach events.

Within the LFD, the CO-OP works with the Emergency Management Team. During the summer, the Emergency Management Team has provided bottled water for the CO-OP to distribute to clients. In addition, the Emergency Management Team releases weather and emergency-related information that the CO-OP has distributed to clients.

Within Lowell House, the CO-OP works closely with programs including the Structured Outpatient Addiction Program (SOAP), Recovery Coaching, The Recovery Café, Spanish-speaking Harm Reduction Navigator, Outreach Nurse, and Behavioral Health Community Partnership (BHCP). The CO-OP frequently refers clients to the various Lowell House outpatient programs and maintains close relationships with employees who run programming to streamline the referral process. In addition, the CO-OP regularly presents at SOAP, including hosting general education presentations, Narcan trainings, and explaining CO-OP services.

Within Trinity EMS, the CO-OP works with staff who maintain FirstWatch, a software that tracks in real time opioid-related 9-1-1 calls, known as opioid-related illness (ORI) calls. Trinity EMS has provided login credentials for several CO-OP team members. Trinity EMS releases ORI reports on a monthly basis, as well as provides aggregate data upon request to the CO-OP.

D: External Key Partners in the Community

The CO-OP has continuously built upon relationships with new and existing external key partners in Lowell, Greater Lowell, and beyond. General categories of key partners include municipal police and health departments in Greater Lowell, governmental agencies, educational institutions, local task forces and coalitions, housing and shelter resources, supportive services for family and loved ones of individuals with opioid use disorder, youth services agencies, and treatment, recovery, and harm reduction providers. (See full list in Appendix).

The CO-OP's relationship with the Middlesex Sheriff's Office (MSO) is of particular note. In early 2018, the MSO gave the CO-OP team an office in their Lowell Community Counseling Center (LCCC). The location provided the CO-OP space to meet with clients and has become a well-known walk-in center for clients. The CO-OP prides themselves on their ability to quickly connect with key partners in the community as a means to best serve their clients. Building relationships helps to streamline the referral process for clients and has shown to reduce time on waitlists and increase the frequency of warm handoffs CO-OP team members report feeling more confident connecting clients to resources when they are familiar with the resources and have a point of connection already established.

The CO-OP has also built relationships with police and health departments throughout the Greater Lowell area who also engage in post-overdose outreach, as well as general substance use disorder and mental health outreach. As the Greater Lowell area has many shared resources, such as the two closest emergency rooms being located in Lowell and the closest detox being located one town over, CO-OP clients often transcend municipal boarders. Building and maintaining relationships with partners in the geographic area that conduct similar work increases resource sharing, builds upon the known provider network, and ensures that clients have access to care coordination regardless of what Greater Lowell community they live in.

In 2019, the LPD was invited to participate in the Critical Incident Management System (CIMS). CIMS, created by Kelley Research Associates. It is a software product developed to support countywide police led programs intending to document all overdose incidents within county jurisdictions, document all outreach attempts to individuals who have overdosed or are at-risk for overdose, and facilitate the transition of those experiencing drug overdoses to treatment. For example, if a Lowell resident is an overdose survivor in a neighboring town, the officer assigned to the CO-OP will receive a notification of the incident so that follow-up may be conducted if necessary. Likewise, if a resident of a neighboring town is an overdose survivor in Lowell, the CO-OP police officer can enter their information into the CIMS and an officer in the other town will be notified of the incident. This allows seamless information sharing. For a full list of other partners see Appendix O.

E: Methods used to build collaborative relationships with partners

Building collaborative relationships with partners is essential to the work engaged in and completed by the CO-OP. Building channels of communication between providers helps to avoid duplication of efforts and enhances the sharing of ideas and access to resources. Because the CO-OP is an initial point of contact for clients prior to accessing treatment and recovery resources, they rely heavily on their relationships with community partners to refer clients to the most appropriate services.

The CO-OP uses a variety of methods to build collaborative relationships with partners. When CO-OP is looking to build a new relationship, team members will make cold calls, and in some cases take advantage of walk-in hours to learn about programs, identify contacts, and exchange information. The CO-OP also offers local providers the opportunity to have team members present about their services, opioid use disorder, Narcan, and youth substance use prevention. Presentations often lead to meeting new contacts and networking with local agencies, especially when presenting to local task forces and coalitions where a host of agencies are represented. In addition, CO-OP builds collaborative relationships with partners when they are referring clients to new agencies. Team members ask the new agency questions about their referral process and make connections along the way to ensure that referrals are completed in their entirety and that clients have follow-up from the referred agency. Another method used to build collaborative relationships is the distribution of their business cards and brochures wherever they go in hopes that someone will reach out after seeing the materials. The CO-OP has seen success with this, albeit less frequently than when they actively build relationships with partners. Lastly, the CO-OP has information on various websites, including www.LowellMA.gov and www.DrugFreeGreaterLowell.org.

Goal 2: Increase access to treatment for overdose survivors and

Goal 3: Decrease arrest rates of those enrolled in CO-OP compared to those not enrolled

While Goals 2 and 3 are distinct in strategies and are evaluated separately in the Evaluation section of this report, both were largely addressed through the outreach activity of the CO-OP team, and are combined here for clarity

CO-OP Team Outreach

The three main pillars of work engaged in by the CO-OP are post-overdose follow-ups, community engagement, and educational outreach. Post-overdose follow-up is the first priority for the CO-OP and was what the SPI funding was intended to support; however, the work of the team evolved to include prevention as well. Monday through Friday, the CO-OP's assigned police officer reviews police reports completed by the LPD to identify survivors of opioid-related overdose. Similarly, the assigned CO-OP EMT(s) reviews Trinity EMS's recent patient care reports to identify individuals who survived an opioid-related overdose who may not have engaged with police but did so with EMS. Due to HIPPA regulations, information on individuals identified in police reports can be shared with other members on the CO-OP. Since the officer has access to the information and is part of the team, the officer is able to conduct outreach together with the other team members. Without a police officer on the CO-OP who accesses the data, it would be difficult to pass the information over to the CO-OP. Information from Trinity

EMS's patient care reports cannot be shared with the CO-OP without consent from said individuals. The assigned EMT(s) will call individuals to inquire about consent to outreach in person and/or offer resources over the phone. If an individual consents to a visit, their information is then shared with the other CO-OP team members; if an individual does not consent, then their information is documented within an internal tracking system at Trinity EMS. Once a list of survivors of opioid overdose is created, the CO-OP divides the list and conducts in-person follow-ups. The CO-OP meets with clients in various settings, such as in personal residences, hospitals, shelters, and homeless encampments, to provide outreach post-overdose to offer support, education, and connect to services for individuals in all levels of the substance abuse disorder and recovery spectrum. The CO-OP focuses on following-up with survivors of an opioid-related overdose within 24-48 hours of a documented overdose, but sometimes barriers are faced and contact is unable to be made. In addition to initial outreach, the CO-OP follows-up with individuals in-person and via phone as a means to check-in, provide additional support, and help individuals achieve their treatment and/or harm reduction goals. Overall, the CO-OP follows individuals through the substance use disorder treatment and recovery process in order to help them avoid gaps in treatment.

The CO-OP participates in community engagement in a variety of ways. CO-OP team members visit encampments to check-in on residents, build rapport, and offer supports. CO-OP team members will also walk around the Downtown neighborhood, as well as local parks and green spaces where people are known to congregate, to connect with individuals who may look like they are in need of support. Walking around gives the CO-OP an opportunity to survey the landscape of the opioid epidemic, which has been fast evolving in Lowell. Additionally, the CO-OP visits local treatment facilities and other resources serving those with opioid use disorder to build relationships with facility staff; this often helps streamline the referral process later down the line. The CO-OP also engages with loved ones of individuals with opioid use disorder to provide support and offer connection to resources for themselves and their loved ones.

The CO-OP prides themselves on their educational outreach efforts, especially to local agencies serving youth and families. The CO-OP regularly presents to classrooms about their work, general substance use education, and local support systems. The CO-OP also frequently provides educational presentations to local partners, such as the Department of Children and Families, on topics such as local resources, Narcan, and youth substance use. Engaging in these types of preventions activities has assisted CO-OP in their personal self-care. CO-OP members want to do more upstream to prevent the start of substance use disorders.

Information Sharing

From its inception, the SPI working group struggled significantly as a co-disciplinary team to communicate about clients while complying with HIPAA regulations. Each member had different restrictions on what information they had access to about potential clients, the SPI working group was very aware and cautious in addressing this issue. After consulting with an attorney, the SPI working group drafted a consent form and had it approved by the City of Lowell Law Department. CO-OP partners decided on the following procedure: upon learning of a person that potentially needed assistance, the CO-OP team member who received the information would introduce themselves to the person, explain the mission of the CO-OP, and have the potential client sign a waiver allowing their situation to be discussed among the team.

The team initially did not like this approach because they felt it was too formal at a moment when they were trying to make a personal connection. We learned this conversation was a nuanced skill that could be honed with practice. The SPI working group drafted a consent form and had it approved by the City of Lowell Law Department and it was put into use by the team.

Additionally, the CO-OP needed a **sharable database** to keep track of and document their work. The SPI working group met several times with Dr. Melissa Nemon to create a database. Along with drafting her own ideas, Dr. Nemon also suggested existing HIPAA compliant databases that could be suitable for the CO-OP's needs. The SPI working group attended several demonstrations from various companies showcasing their databases. Pricing ultimately played the biggest factor in the final choice for the software. After much searching and researching, Dr. Nemon suggested IntakeQ and after a demonstration, it proved to be the best fit for the CO-OP team. CO-OP populated the database with date of encounter, location of encounter, and demographics (age, gender, ethnicity, race, marital status, veteran status, health insurance status, and MA residency status). The form also collects details on how the encounter occurred, who initiated the contact, if it followed an overdose, and whether or not there was any contact with a family member of an overdose survivor. The form has a section for the outcome of the encounter, which lists options for the most common outcomes the CO-OP experiences. Finally, the form asks the CO-OP team to make a determination as to what Stage of Change the client is in. This is based on their knowledge of the client from past encounters and through police and medical records as well as what the client self-reports to the team.

Stages of Change:

Pre-contemplation	Contemplation	Preparation	Action	Maintenance
No Intent to change Behavior seen as having more pros than cons	Thinking of changing Seeking information Evaluating pro and cons Not prepared to change yet	Ready to change in attitude and behavior May have begun to increase self-regulation and to change	Modifying behavior Learning skills to prevent reversal to full return to problem behavior	Sustaining changes that have been accomplished

CO-OP team members can access this database each time they engage with existing and new clients, informing the manner in which the current encounter might assist the client. The database is also used by the CO-OP team during case management meetings to discuss clients as well as ways to improve processes and client outcomes. The Clinical Recovery Specialist as the case manager also enters data they obtained from the participant about other referrals to other places such as a methadone clinic, detox, etc.

In 2019, the CO-OP Supervisor formalized data extraction and began consistently pulling specific data points to share with CO-OP agencies and the Lowell Board of Health as a part of the LHD's monthly report to the Board.

Outreach efforts during COVID-19

In March of 2020, after the arrival of the COVID-19 pandemic, most community partners began working remotely. Of the CO-OP team, the LPD Officer and Trinity EMS staff were reassigned to other duties within their home organizations due to staffing shortages. The LHD and Lowell House staff were asked to work remotely. Only the Lowell firefighter remained to conduct outreach activities in the community with limited access to overdose survivor information.

Outreach activities changed dramatically. In the past, the CO-OP team had been able to offer services to overdose survivors in Lowell once they consented. Survivors were identified through police reports and Trinity EMS reports. While the LPD and Trinity EMS members of the CO-OP team were reassigned to different duties, the communication of the identities of overdose survivors was interrupted. Without the reports from LPD and Trinity EMS, the firefighter did not receive the notification needed to follow-up with an overdose survivor. The firefighter's activities were restricted to attempting to stay in contact with clients for whom they already had phone numbers, as well as answering the CO-OP phone and responding to requests for assistance from there. Client engagement was limited to phone calls and text messages. Engagement with new clients was minimal. This continued until June of 2020, when CO-OP began transitioning back to the office and reengaging in outreach activities in-person.

Because of these obstacles, the CO-OP's outreach was severely curtailed. For instance, during the first six months of 2020, the CO-OP team was able to assist 29 individuals into some form of SUD treatment. This was a significant drop from 98 in July-December 2019. Additionally, prior to COVID restrictions the CO-OP police officer regularly completed Section 35s[6] either on clients they were extremely concerned about or by assisting family members through the process at the Lowell District Court. With the CO-OP officer reassigned for four months, the number of Section 35s significantly decreased. A similar dynamic occurred with the Lowell House CO-OP member trained in Narcan distribution who was only able to disseminate Narcan to 28 individuals in the first six months of 2020, compared to 115 during the prior six months.

The goal of increasing access to treatment suffered tremendously due to the COVID-19 pandemic and it put strains on each agency of the CO-OP, as well as detox facilities and other treatment services. Frustrated by restrictions placed on their ability to work in the community, the CO-OP argued to their organizations' leadership that opioid outreach work is an essential duty and that all members of the team should be allowed to work in-person. All partners agreed, and despite increases in the number of COVID-19 cases the CO-OP resumed work in the community. The LHD and Lowell House members resumed in-person work and the LPD and Trinity EMS members who had been pulled from their special assignments from the CO-OP for other COVID-19 related duties returned to their outreach work.

Upon their return to the community, the CO-OP found unprecedented need from the SUD and homeless communities. The number of individual encounters per month more than tripled pre-COVID-19 levels. The need for housing and financial support was at levels that the CO-OP had not seen before. Demand came from a combination of clients they had been working with prior to the pandemic who struggled with not having access to virtual treatment such as telehealth, past

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[6] Section 35 is a Massachusetts law that allows a qualified person to request a court order requiring someone to be civilly committed and treated involuntarily for an alcohol or substance use disorder. There must be clear and convincing evidence that there is a likelihood of serious harm to self or others as a result of their substance use disorder.

clients that relapsed since the start of the pandemic, and a large number of new people seeking assistance.

To provide context to the amount of engagement the CO-OP team experienced when they were permitted to return to in-person work, the table below shows the increase in numbers from the first six months of 2020 when they were mostly prohibited from community work and the second six months when they had returned and the six months following.

CO-OP Encounters	January-June 2020	July-December 2020	January – June 2021
Total encounters	208	1179	1209
Encounters with new clients	32	119	145
Received SUD treatment	29	159	82
Narcan doses distributed	28	170	403
Received medical or harm-reduction treatment	26	178	62

During the last six months of 2020, the CRS took on 152 new clients. It should be noted that even when the team returned, the CO-OP police officer still only assisted with 6 section 35s. This number remained low because the Lowell District Court held most hearings virtually. Police departments in Middlesex County were encouraged to avoid arrests wherever possible in an attempt to mitigate virus exposure in holding cells and jails.

The CO-OP continued to encounter an overwhelming number of individuals seeking assistance during the first half of 2021. The table above shows that the spike (208 to 1179) in interactions that occurred when the team returned to in-person work continued. In addition to the overall numbers represented in the table, the need for services was illustrated by the CRS's caseload, which totaled 284 clients, 61 of whom were new in 2021. The CRS held 823 clinical sessions, assisted 165 clients with medical treatment, 41 with transportation, 290 with housing, 321 with financial assistance, and 17 with Department of Children and Families. See tables in the Research and Evaluation section for these data visualizations.

Transportation

A barrier to access treatment during this time was transportation. With increased demand for treatment, the team needed the flexibility of being able to transport clients without relying on other agencies, rideshares (too many administrative hurdles to overcome), or their personal vehicles. Additionally, being limited to one car, that was often out of service for repairs, limited the geographical reach of the team.

LPD had several conversations with their BJA State Policy Advisor regarding the need for a vehicle. LPD could submit a request but it would need to pass through several levels of approval. The purchase of a vehicle was approved in April 2021 and a new Ford Interceptor arrived in June. The new, reliable vehicle allows the team to dramatically increase their outreach activities as well as transport clients to treatment facilities.

Goal 4: Reduce the effects of trauma experienced by children impacted by opioid overdose

The LPD originally partnered with the Mental Health Association of Greater Lowell (MHA) to participate in the Project CARE (Child Assessment and Response Evaluation) program. Through the program, Lowell police officers received training to identify signs of a child's presence in a home where an overdose occurred. If a child's presence was detected, the officer would immediately call MHA so that the child could get connected to services. The LPD found that there were several problems with this approach that caused them to miss the majority of children affected by the opioid epidemic in the city.

The community of people who overdose oftentimes does not have custody of their children, so children are therefore not often present at the scenes. The children generally live with a sober parent, rather than the suffering parent. They are sometimes in DCF custody or being raised by grandparents or other family members. Furthermore, people who do have custody of their children are savvy enough to fear that their children could be taken from them if they use drugs in the presence of the child.

Despite these barriers, Project CARE did have some success with the CO-OP contacting them from the scene of an overdose when they became aware that a child or children were present. The child may not have been present during the actual incident, but they were affected. The majority of Project CARE referrals were made by the CO-OP during their follow-up efforts.

At the start of 2018, several events happened that caused the trajectory of Project CARE to change – the Project CARE clinician left her position at MHA and then MHA closed and operations were subsumed under Vinfen. Vinfen also provides comprehensive services for adolescents and adults with psychiatric conditions, intellectual and developmental disabilities, brain injuries, and behavioral health challenges. While Vinfen took over many operations formerly conducted by MHA, staff positions were either eliminated or in flux. During the interim period, the LPD was continually challenged with communicating and securing a new contract with Vinfen. Finally, the LPD found out that the Clinical Director engaged with Project CARE left Vinfen. Despite efforts, the CO-OP no longer had ready access to a clinician or any additional data points. At the same time, the CO-OP expressed that there were fewer instances where they could refer a family to Project CARE.

The LPD learned of Camp Mariposa for youth ages 9 to 12, which is a year-round addiction prevention and mentoring program for youth affected by the substance use disorder of a family member. Youth who are facing the difficult challenges associated with a family member's substance use have the opportunity to attend programs with a combination of camp fun and educational and support sessions led by mental health professionals. Youth who attend Camp Mariposa learn coping skills that build resiliency and ultimately break the inter-generational cycle of addiction. The LPD was in the process of setting up that partnership shortly before the COVID-19 pandemic hit, which derailed this opportunity.

Even after ending the partnership with Vinfen, the CO-OP team continued to be the main entity in Lowell identifying children affected by the opioid crisis and referring those

children to services. It became clear that the team needed a member who specialized in working with children and could navigate the many services available for children experiencing trauma in Lowell. The LPD was able to secure funding to hire a Youth Outreach Specialist (YOS), under the supervision of the LHD, to be part of the CO-OP team. The YOS works with youth up to the age of 24 and their families who have been impacted by the opioid epidemic to connect them to resources that can prevent or mitigate the impact of the opioid crisis on their health and wellbeing. The pandemic delayed hiring the YOS, but the position was filled in December 2020.

Despite the challenges posed by pandemic restrictions, in the first half of 2021 the YOS met with numerous youth serving agencies in the city to introduce herself and her services. By the end of June 2021, the YOS:

- Had a caseload of 68 young people.
- Provided Substance Use Disorder treatment and recovery coordination to 70 clients.
- Helped 72 people receive healthcare coordination, resulting in an additional medical service for mental health, psychiatry and/or behavioral health services.
- Connected 47 clients with housing referrals

See the Research and Evaluation section for data visualizations of these efforts.

The YOS received specialized training on AdCare's "Implementing Seeking Safety with Adolescents" which she will be able to advertise as a skill and lead groups. Similarly, in May of 2021 she became a Youth Mental Health First Aid instructor and can now facilitate trainings to youth and youth-facing providers in the city.

The YOS has experienced difficulty connecting with younger children affected by opioid use disorder. While successful in finding and working with youth ages 16-24 who were suffering from substance use disorder themselves, the YOS struggled to identify youth under 16 who may not have their own substance use disorders but who have been affected and could use support services. This difficulty was in part due to the pandemic. School nurses and social workers were envisioned as a large source of referrals, but with schools conducting remote learning, it was difficult not only for the nurses and social workers to identify students with those issues, but also for the YOS to connect with those students. Several social media postings and flyers advertising her services were created and distributed to aid in outreach.

Goal 5: Inform research, policy, and future programs for adults and children impacted by opioid use disorder in Lowell and other cities struggling with similar issues

Two main objectives were identified under this goal. One was to create a profile of overdose survivors to better understand their first point of contact with law enforcement or other agencies to uncover patterns and missed opportunities that could have changed the trajectory of that person's life. The other objective was to conduct a process and impact evaluation that would result in institutionalized strategies that could be disseminated to other communities interested in arresting a similar opioid crisis.

Gaps and Opportunities - Databases

In order to identify and better understand where a community can fortify existing programs and services and build new or better bridges across them to those they seek to serve, we wanted to explore the life course of those with opioid use disorder. Where might they have fallen through the cracks? Where was a missed opportunity? What do any trends indicate? Does the CO-OP program make a difference? To do such, two databases were created and analyzed. First, the *CO-OP Encounter database* (page 17), through an iterative process was developed to collect demographics, stage of change, and what occurred during the encounter. This database plays a double duty role of assisting the CO-OP in their day-to-day work and helps answer some of the above questions.

For the second database, the initial intent was to create a profile of all CO-OP clients by combining all data from several agencies into one place to be examined and analyzed.

Data Field Examples by Agency

CO-OP Team	Encounter and CRS Form data excluding identifiable data points
Trinity EMS	Calls, reason for call, priority of call, disposition, location but not address
Lowell House	Referrals to programs, harm reduction efforts/referrals, length of time, outcome, # of wellness plans and goals, goals met
LPD	Interactions/Encounters – all BOPs - victim, perpetrator, witness, FI cards

Several challenges were encountered in taking on this effort. First, the SPI working group was again stymied by HIPAA and local data sharing restrictions. While some agencies could share identified data with each other, others could not. We explored many approaches including an *honest broker* who could take all the data with identifiers and put them all together before de-identifying them and providing them to the researchers. However, we figured out a process quite late in the grant period that would allow the data to comply with policies and be pooled together.

Second, the LPD determined that, also to comply with local, state and federal information sharing policies, only those with clearance and internal to the organization and trained to access and read police encounter data could cull such data for each client. Some clients had over 100 police encounter narratives, each requiring redaction of all names. This leads to the third challenge, the high total number of clients reaching over 400.

The SPI working group decided that due to the above constraints to narrow the sample to 20 clients who were seen the most often by the CO-OP, familiar faces.

To determine the group of Familiar Faces, the CO-OP created a list of all clients with more than one recorded interaction with the CO-OP and sent it to Trinity EMS, who compiled a list of total requests for service for each of these individuals. The number of CO-OP interactions were added to the number of Trinity EMS service calls to select the individuals with the top 20 totals. The CO-OP created a code for each name and sent the list to Trinity EMS, Lowell House, and the LPD, each of which added data on any interactions their organization had with each individual.

Each agency deidentified each encounter/incident from the spreadsheet and sent the data to the UML research team. The research team merged the data by each person's code. Researchers examined data for trends on the individual, community, and institutional level that point toward potential areas where services could be bolstered, or changes could be made to improve outcomes for individuals. The results are in the research section of this report.

Analysis and Evaluation

Role of the Research Partner and Adaptations to the Plan

The UML Center for Community Research & Engagement (CCRE), along with key faculty with expertise in substance use disorder and criminal justice, public health and epidemiology from UML and Suffolk University, provided research expertise in process and impact evaluation including data analysis, during the entire project. The process evaluation was centered on monitoring the timeline, milestones and partner experiences, and measuring the results of those activities against project goals. They ensured the program was on track to meeting its targets and informed staff when adjustments needed to be made. The outcome/impact evaluation assessed the effectiveness of the program in producing the desired changes.
The research team employed a participatory action research approach that emphasized the CO-OP partners' involvement in the research process as much as possible without overburdening the workflow. Engaging the key partners in data collection, reflection and action allowed the researchers to support capacity building so that partners could better understand and improve the work they do.

During the planning phase, the research team worked closely with the LPD and partners to create data collection tools (e.g., encounter forms, database) and protocols for collecting and submitting de-identified data to the team.[7] The research team ensured that this collaboration resulted in tools that were both useful and easily accessible for each partners' individual needs.

The SPI working group including LPD, all program partners, and the research team, met on a regular basis. These meetings were used to identify opportunities for action and improvement throughout the process, ensuring the success of the project and research activities. Additionally, the research team had periodic scheduled meetings (in-person, virtual, phone) with the LPD Research and Development Staff to maximize opportunities for problem-solving and support.

At the outset, the evaluation monitored the process and documented the outcomes of the proposed project examining the following questions:

1. What structural, functional and relational mechanisms are established and utilized to support (CO-OP & CARE) implementation? (e.g., Memorandum of Understandings (MOUs), shared database and case management systems, trainings, monthly meetings, etc.)
2. What are the processes developed for each program (CO-OP & CARE) that are working and what needs to be improved for increased effectiveness?

[7] All human subjects' evaluation procedures will be submitted for approval to the UMass Lowell Institutional Review Board.

3. What are the effects on law enforcement and social service providers? How have relationships been strengthened? Has capacity increased to address the opioid overdose crisis?
4. Does the CO-OP model increase access to treatment for overdose survivors? To what extent?
5. What is the effectiveness of the CO-OP compared to the 'system as usual' comparison condition in increasing the drug treatment service utilization by people with an opioid use disorder, reducing recidivism in terms of the number of overdose events (both fatal and nonfatal), and in reducing criminal recidivism (i.e., arrests and charges) among people with an opioid use disorder?
6. What are the characteristics of the targeted people with opioid use disorder (e.g., demographics, criminal history, criminal justice supervision; probation and/or parole conditions; initial use profile, usage patterns, interventions attempted, not attempted)?
7. Does the CARE initiative reduce the effects of trauma experienced by children impacted? To what extent?
8. What are the within-subjects differences on variables for enrolled children in the CARE program (i.e., health status, psychological symptoms, goal attainment)?

Over the course of the grant period, several adaptations in the research plan were approved. These include:

Research Question #4: Does the CO-OP model increase access to treatment for overdose survivors? Was adapted to:

4a. Does the CO-OP model increase access to information, resources, and/or treatment for overdose survivors and individuals with opioid use disorder?
4b. Does the CO-OP model assist overdose survivors and individuals with opioid use disorder with positive progress within the stages of change?

The CO-OP team, when visiting survivors of an overdose, provide a myriad of resources, information, and referrals dependent upon their most immediate needs. These touchpoints have an impact. The SPI working group wanted to make sure the deliverables were aligned to capture the work of the CO-OP team that assists people along their way to recovery.

Various data about information, resources, and treatment are already being collected within the CO-OP encounter data collection and case management tools. Fields were added about stages of change to each tool which operationalizes definitions.

Research Question #5: What is the effectiveness of the CO-OP compared to the 'system as usual' comparison condition in increasing the drug treatment service utilization by people with an opioid use disorder, reducing recidivism in terms of the number of overdose events (both fatal and nonfatal), and in reducing criminal recidivism (i.e., arrests and charges) among people with an opioid use disorder? Was adapted to:

5a. What is the effectiveness of the CO-OP interactions with clients in increasing access to information, resources, and/or treatment by people with an opioid use disorder, reducing the

number of nonfatal overdose events, and in reducing law enforcement encounters (i.e., FI cards, victim, perpetrator, section 35)?

5b. What is the context that shaped the CO-OP implementation? What accelerated and decelerated the implementation process? What important lessons have we learned about how to implement the CO-OP approach that can inform and practice?

Research Questions #7 and #8

The following were eliminated:

7. Does the CARE initiative reduce the effects of trauma experienced by children impacted? To what extent?
8. What are the within-subjects differences on variables for enrolled children in the CARE program (i.e., health status, psychological symptoms, goal attainment)?

As per the original Action Plan, when LPD officers responded to an overdose and a child was present, the child was referred to Project CARE for early intervention. To refer a child to Project CARE, the responding officer contacted the Mental Health Association's (MHA) Project CARE clinician who coordinated evaluation of the case and developed an intervention plan for the child or children affected. A total of 68 children were referred to and 37 follow ups were conducted by MHA through 2017.

Due to circumstances discussed earlier (page 20), the LPD and CO-OP partners sought out other solutions to serve children affected by the opioid crisis in Lowell.

Research Questions, Methods, and Results by Goals

The outcome/impact evaluation assessed the effectiveness of the program in producing the desired changes listed below.

Goal 1: Increase capacity of the Lowell Police Department (LPD) and public and private health agencies to address the opioid overdose crisis

Research Questions addressed by Goal 1:

1. What structural, functional and relational mechanisms are established and utilized to support implementation? (e.g., Memorandum of Understandings (MOUs), shared database and case management systems, trainings, monthly meetings, etc.)
2. What are the processes developed that are working and what needs to be improved for increased effectiveness?
3. What are the effects on law enforcement and social service providers? How have relationships been strengthened? Has capacity increased to address the opioid overdose crisis?

Methods

The Research Team conducted a document review of the roles and functions of partners, staff hired, meeting/communication activities, agendas, outputs.

Process Interviews. In addition, they conducted semi-structured interviews with members of the CO-OP including supervisors to determine what was working, challenges seen and overcome, and recommendations to improve information sharing, strategies and the overall process. Interviews were conducted in the Fall of 2017 (n=11), Fall of 2018 (n=8), Summer of 2020 (n=10) and Summer of 2021 (n=7).

Data Analysis. All audio-recorded interviews were transcribed for analysis. Qualitative data was analyzed through identifying themes that arose with particular attention to phrases and/or concepts that informed the research questions. The content analysis of documents followed a systematic examination of data to identify themes and, ultimately, variables that may be associated with successful (and unsuccessful) efforts. Data were reported in aggregate and included insights and recommendations from the stakeholders and evaluator perspective, as well. This served as the foundation for data-driven decisions regarding future activities.

Relational Coordination Scale - In addition, the research team administered an on-line survey (Relational Coordination Scale) to all partners (the CO-OP and CARE teams, program managers and coordinators) at two times. Staff involved in implementing the CO-OP were surveyed about coordination and communication among agencies. The surveys were administered in late Fall 2017 and then Summer/Fall 2019. The total number of respondents in 2017 was 26. The total number of respondents in 2019 was 8. The research team was unable to re-administer the survey to the Lowell Police or Fire Departments in the second round. While we attempted to administer the online relational coordination survey, turnover in staffing and supervision, combined with the challenges that come with a 24/7 field-based workforce, impeded our ability to obtain responses. We are unable to account for other factors that may have impacted response, including survey fatigue or technological shortcomings (e.g., lack of familiarity with Qualtrics).

Relational coordination (RC) is a relatively young, but strong organizational theory for understanding how groups collaborate to accomplish outcomes of interest. A systematic review of the RC literature found that strong communication and coordination between individuals and organizations involved in a collaborative endeavor have positive impacts on desired outcomes (Gittell & Logan, 2015). Dimensions of RC include the following: communication ties (frequency, accuracy, timeliness, problem-solving) and relationship ties (shared goals, shared knowledge, mutual respect).

The RC survey is a tool grounded in the theory of relational coordination (Gittell, 2002). The RC survey measures the nature of communication and coordination among and between individuals involved in a joint work process or collaborative. The survey includes seven questions that seek to assess their perceptions of communication and coordination with others involved in the same collaborative. The tool has been validated in healthcare and in the airline industry and is currently being tested within the collaborative youth and gang violence prevention and intervention domain.

The survey measures the seven dimensions of relational coordination:

1. Shared Goals
2. Shared knowledge
3. Mutual Respect
4. Frequent communication
5. Timely communication
6. Accurate communication
7. Problem solving communication

The following questions were used in the data collection process. Each survey included a list of participating agencies:

Examples of questions include:

- Does your agency have formal, working relationships (e.g., MOU's MOA's) with any of the following agencies as part of your CO-OP activities? (Please check all that apply)
- How frequently do you communicate with agencies in each of the categories below about CO-OP?
- Do these agencies communicate in a timely way about CO-OP?
- Do these agencies communicate with you accurately about CO-OP?
- When problems arise regarding CO-OP, do these agencies work with you to solve the problem?
- How much do these agencies know about the role of your agency in CO-OP?
- How much do these agencies respect your agency's role in CO-OP activities?
- How much do these agencies share your agency's goals for CO-OP efforts?

Data Analysis. Data were aggregated, and means were calculated by partner. Ratings were examined and compared between the two times the survey was administered.

Results

Partnerships have been Strengthened

The CO-OP comprises a diverse team of dedicated members from the LPD, LFD, Lowell House, Trinity EMS, and LHD. This diversity is the source of greatest strength for the team, but also provided challenges that have been addressed over the course of the grant period.

Process interviews with team members, supervisors and other stakeholders continually pointed to the range of expertise, personality and affiliation among the team as a principal strength. Within the team, this has been manifested through a sharing of expertise and resources, and a division of labor to best utilize each member. When interacting with members of the OUD community, the diverse nature of the team has allowed for attending to a wide range of client needs and an opportunity for clients to develop relationships with a team member with whom they feel comfortable or a personal bond. *Diverse team attributes* were the most frequently cited strength of the CO-OP. Interviewees felt the ability to collaborate with members from multiple disciplines complimented by diverse backgrounds and personalities increased their overall success especially with population engagement.

"CO-OP diverse team is like having an entire toolbox instead of just a screwdriver"

While diversity was a great asset to the team, melding individuals from organizations with widely varying missions, cultures and institutional values proved to be a challenge. On a basic level, the institutional instinct of, for instance, a law enforcement agency and a recovery clinic, are going to be different when confronted with a member of the OUD community in a homeless encampment. A police officer may not be able to distribute clean syringes, for example, because of internal policies. Adding to this friction, the role of the CO-OP Supervisor and how their oversight might or might not conflict with the expectations of team members' home institutions was not clearly articulated in the beginning.

> *"Team is functioning but may have to set some boundaries on what they say yes and no to. Supervisory people need to recognize this is happening and give ok to say no"*

These cultural challenges were addressed in two related ways. First, during monthly Supervisors Meetings, these issues were discussed, and decisions made on the supervisory level as to how to move forward. In essence, it was decided that the CO-OP team members would continue to abide by their home institutions' policies and procedures while respecting that other team members would be doing the same. The second step was to review the original MOUs agreed upon by the CO-OP institutions in light of these experiences and modify and revise them to better define organizational roles as well as the role of the CO-OP Supervisor. The areas of responsibility and authority of the CO-OP Supervisor were clarified to mitigate any uncertainty about how the CO-OP team members were being managed between their home institutions and the CO-OP.

As with most such groups, the CO-OP team members reported during process interviews that there was some personal friction between certain members of the team. While this created challenges for the team members and the CO-OP Supervisor, it is worth noting that this friction was not noted by process interviewees outside of the immediate team, indicating that whatever friction existed did not negatively affect the team's performance in a way noticeable to engaged outsiders.

Relational Coordination Scale Data. The aggregated RC scores are reported below, with each color representing the strength of communication and coordination (weak, moderate, strong). The goal was to use the results to identify opportunities to strengthen the CO-OP partnership.

RC Matrix 2017

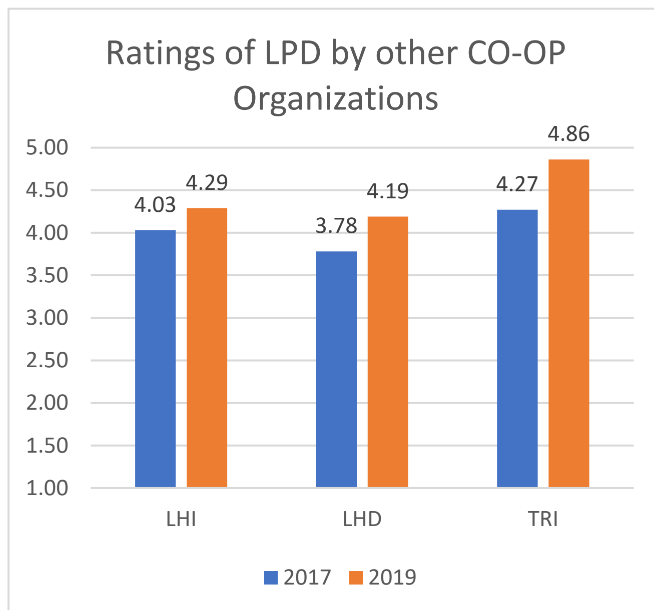
		Ratings Of					
		LPD	LFD	LHI	LHD	MHA	TRY
Ratings By	Lowell Police Department (LPD)	4.485	3.08	3.26	3.23	4.34	4.07
	Lowell Fire Department (LFD)	4.42	2.50	3.26	3.30	4.33	4.071
	Lowell House Inc. (LHI)	4.03	4.86	4.86	2.75	4.62	3.86
	Lowell Health Department (LHD)	3.78	4.785	3.09	3.42	3.76	4.14
	Mental Health Association (MHA)	3.62	4.785	3.89	2.21	4.86	3.57
	Trinity EMS (TRI)	4.27	4.93	4.30	3.57	4.35	4.71

RC Matrix 2019

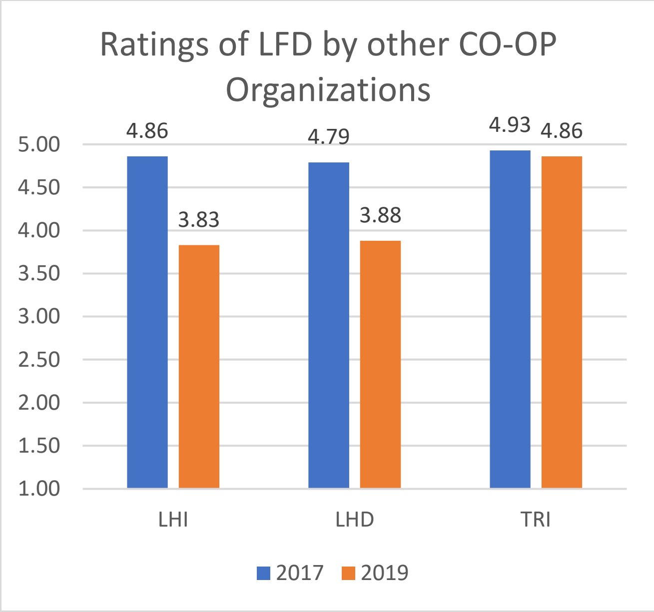
		Ratings Of				
		LPD	LFD	LHI	LHD	TRI
Ratings By	Lowell House Inc. (LHI)	4.29	3.83	4.86	4.00	4.86
	Lowell Health Department (LHD)	4.19	3.88	3.95	4.57	4.59
	Trinity EMS (TRI)	4.86	4.86	4.64	3.43	4.86

Key:	Within Workgroups	Between Workgroups
Weak	< 4.1	< 3.5
Moderate	4.1 - 4.6	3.5 - 4.0
Strong	> 4.6	> 4.0

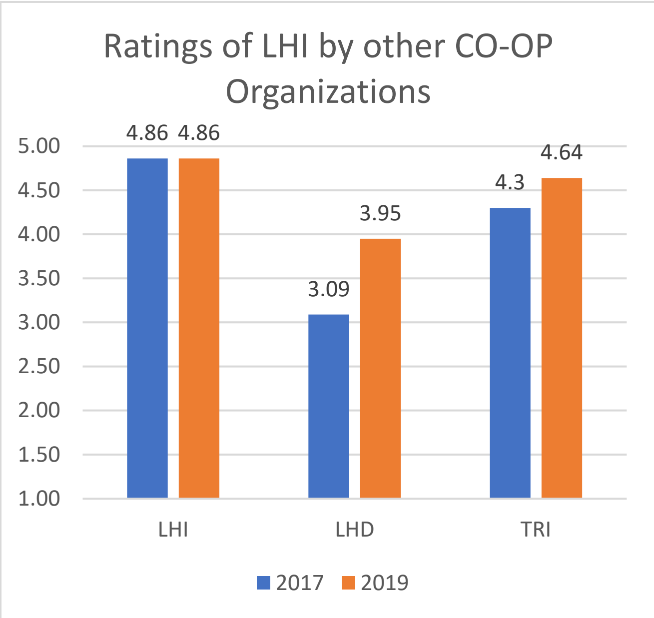
2017 – 2019 Comparison Charts



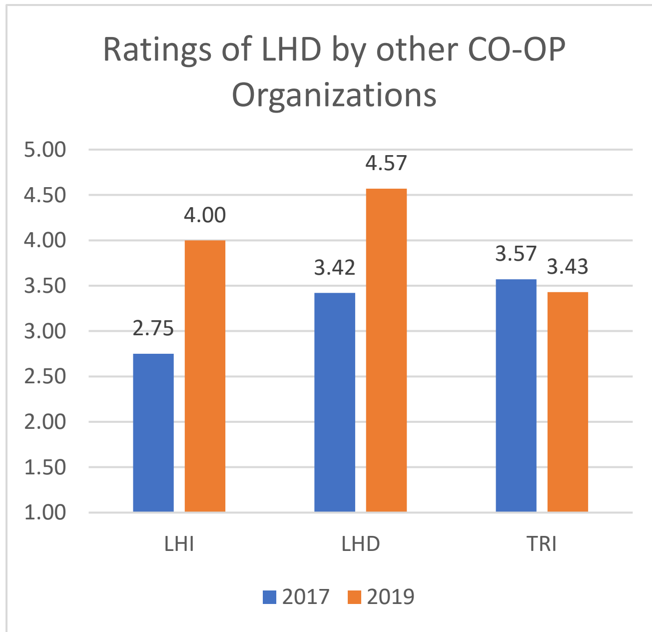
Lowell House, LHD, and Tininty EMS (TRI) scored the LPD higher in 2019 than 2017.



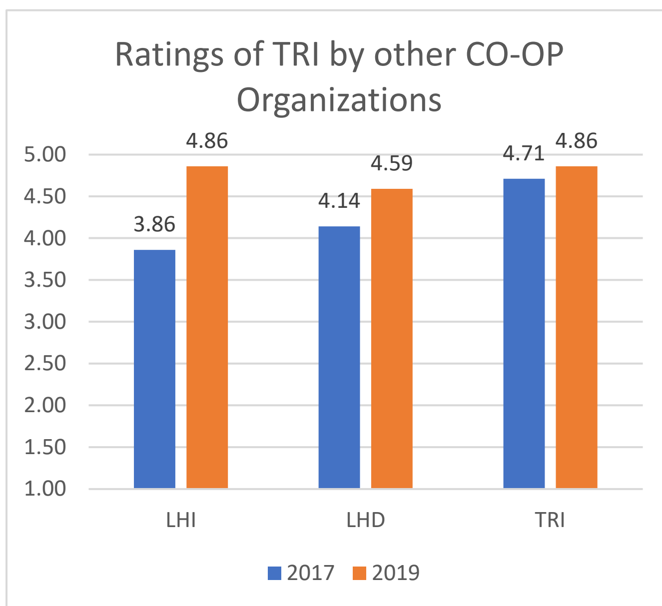
Lowell House, LHD, and Tininty EMS (TRI) scored the LFD lower in 2019 than 2017.



LHD and Trinity EMS (TRI) scored Lowell House higher in 2019 than in 2017. Lowell House scored themselves the same both years.



Lowell House scored LHD higher and Trinity EMS (TRI) scored them lower in 2019 than in 2017. LHD scored themselves higher in 2019 than in 2017.



Lowell House and LHD scored Trinity EMS (TRI) higher in 2019 than in 2017. Trinity EMS (TRI) scored themselves higher as well.

Improvements were seen comparing 2017 to 2019 however there were limitations to this data analysis thus caution should be made when drawing conclusions.

- There were several personnel changes between survey administrations periods.
- The inability to obtain survey data from both the LPD and LFD limited our analysis.
- The number of respondents was low overall for all organizations.
- RC survey data should be considered with other process data to better understand the context and the role of leadership, effectiveness, and the cultures of multiple organizations.

It is important to regularly reflect on and analyze the communication and coordination of complex teams such as the CO-OP as new staff are integrated, and practices are further solidified. Strengths can be highlighted and adjustments can be made to sharpen processes.

With those in the OUD Community

In process interviews, both CO-OP team members and supervisors emphasized the team's success in building rapport and trusted relationships within Lowell's OUD community. The keys to this success were identified as: having a physical presence in the community; assisting clients with at-the-moment needs, such as getting a new ID or socks; establishing judgment-free communications with clients; and understanding that recovery can be a stop-and-go process. Team members understand that individuals may not be ready to commit to treatment at a given point in time and that it is important to respect that state of mind, meet them where they are at, and continue to build the relationship in the hopes that contemplation to change will come at a later date.

> *"Outreach hasn't changed so much but establishing rapport with people has changed and more team members makes it easier to do this because everyone brings their own personalities and reach"*
>
> *"For the team, has been realization that supporting other needs (holistic services) in addition to detox or groups has grown. Sometimes what they need is to just talk about the Red Sox over a bottle of water"*

As the team gained more experience working within the OUD community, they were confronted with unanticipated challenges with clients. These ranged from issues such as the presence of young children at the site of contact to fear or distrust of the police. These challenges were discussed and strategies were formulated to put into action.

During a Crisis

The COVID-19 pandemic and the state and institutional responses greatly impacted the work of the CO-OP team beginning in mid-March 2020. The primary impact was the decision made by all of the parent organizations, with the single exception of the LFD, to either mandate work-at-home policies or reassign CO-OP team members to other tasks. These decisions were made independently by each organization. The presence of only one team member in the community greatly reduced the effectiveness of work with OUD clients. As noted earlier, the diversity (page 27) of the team is one of its strengths, so being reduced to one person negated that strength, limiting the ways in which clients could be helped, depriving many clients of their "go to" member of the team; and simply being unable to attend to as many individuals. Additionally, there were safety issues involved in having a single member of the team alone in the community.

Because they were unable to physically meet with clients, the CO-OP team resorted to trying to meet virtually, mostly by phone. The OUD community, though, is a particularly difficult group to meet with in this way, with individuals who have phones often unable to charge them or reliably answer/return calls. This challenge was indicative of a sense that there was no plan for the CO-OP team to follow in this type of health emergency and that it took an inordinately long time for a plan to be formulated and communicated, leading to confusion and frustration among the team. This was in some ways understandable, given the unprecedented nature of the

pandemic and the competing priorities in the parent organizations. However, a lesson coming out of the beginning of the pandemic period was the need to be more deliberate in maintaining frequent and clear communication with team members if a similar shutdown should occur. Another communication problem involved the timely provision of LPD overdose information to the CO-OP. That had been a task handled by the LPD member of the team, and when the police officer was reassigned to pandemic related duties, a new process for the team to receive information was not immediately identified and implemented.

The CO-OP felt that their work was devalued when they were pulled from their on-the-ground responsibilities. They universally felt that they should be considered essential workers and that not doing so was a mistake, especially when clients would be experiencing a particular need for support. When the pandemic restrictions were lifted, team members found themselves returning to find that many clients had suffered setbacks.

With other Service Providers

The CO-OP team aimed to develop relationships with non-CO-OP organizations offering services, resources and/or treatment potentially of use to clients. In process evaluation interviews, this effort was seen as being successful.

> *"When CO-OP first began the main focus was on post overdose and outreach, and now the program is more about bringing in other harm reduction programs such as shelters or churches and building relationships"*
>
> *"Had success in coordinating with community partners and getting people to the table for this issue."*

The team has worked with organizations such as shelters, hospitals and detox centers. These relationships have been beneficial both in that they meet client needs and that they allow the CO-OP to be better informed about the full spectrum of a client's care. A potential priority going forward is to further solidify the relationship with Lowell General Hospital, perhaps by having a Hospital employee join the team or have a Hospital representative attend Supervisor meetings.

Process interviews found that some work could still be done to improve collaboration with other agencies in the city.

> *"More ride-alongs of other agencies so they can see what we do for a day and gain empathy for our population served"*
>
> *"Improving working relationships among partners in the city can be enhanced greatly"*

Processes have been Developed and Honed over Time or Required Persistence and Patience

The CO-OP program developed and refined MOUs, data collection, and resource acquisition processes over the grant period.

MOUs

To clarify roles and reduce potential conflict, MOUs were modified and revised to better define specific responsibilities of each organization and team member including the CO-OP team supervisor. See Appendix C for contents of MOUs.

Data Collection

Data collection and sharing processes went through a period of development and are now comprehensive and efficient. The challenge was to develop a system and procedure that collected data important for informing and assessing CO-OP efforts and that were designed around point-of-service-delivery needs and were not onerous. The need for this system was recognized early on and prioritized. The resulting system has been successful in that data gathering has improved considerably and that data informs both practice and assessment, as is seen in this report.

> *"Data collection has come very far, took years to find database and create one with expensive pricing, getting info in database. Things they felt would never be fixed and went on for years are going well"*
>
> *"All of CO-OP team members have access to all of the same reports that are across departments which is beneficial"*

Team and Supervisors' Meetings

Very early on, the front-line CO-OP team members experienced challenges with role clarification based on missions and culture of each organization they represented. The SPI working group identified the need for CO-OP supervisors to meet on a regular basis to assist with gaining a clearer understanding of what each team member was able to do per their own institutional policies and job description. It was discovered that there was a disconnect between what the team was doing and the supervisors understanding of what they were doing.

Additionally, since the LPD was able to secure funding to build the capacity of the CO-OP, some team members would reach out to the LPD Research & Development Office for a variety of reasons. While this was certainly okay, the Research and Development staff could only do so much for the team. From the beginning, the Research and Development staff reiterated to team members and supervisors to restructure the language around how we were discussing the CO-OP, data and research. The LPD Research and Development staff wanted to ensure that the team and supervisors understood that everything that the LPD staff and researchers were doing and asking for would benefit the team in the end and was not just for grant reporting. The supervisor's meetings gave an opportunity for LPD Research and Development staff to explain the importance of data and research to document the CO-OP accomplishments. Since the CO-OP's inception, the team, supervisors, SPI research team and LPD Research and Development staff have made presentations to various agencies and local government on the team's successes and challenges and data points. The opinions around the use of data and research has evolved over time with the implementation of the supervisor's meetings. The group meets monthly to problem-solve, share ideas, discuss needs areas, identify ways to best support the team, and make supervisor level decisions.

Obtaining Resources

The CO-OP team has been resourceful in obtaining necessary resources to do their job safer and more effectively. Specifically, Trinity EMS has provided in-kind various items such as first in bags (BP cuff, stethoscope, bandaging, etc.), tablets, flashlights, PPE, AED for the second car, and data to make informed decisions. LHD provided hand warmers, winter jackets, and hats for team members and sunblock, bottled water, and hand sanitizer to give out in the community. LHD also funded CPR/First Aid training. LFD provided the first car (Blues Mobile) and bottled water to give out in the community. Lowell House purchased the first set of CO-OP business cards and offered training for the team on Self-Care/Vicarious Trauma, Harm Reduction, and MAT training by Praxis. The LPD provided a cruiser at the start of the project. The Middlesex Sheriff's Office (MSO) has provided the CO-OP office at no cost and has provided front desk staffing and a gym for sober clients. This opportunity was created when the CO-OP learned that the MSO was rebranding/redesigning their outreach office in Lowell to be more recovery friendly. Locating the CO-OP office there has contributed to those efforts. Additionally, many community-based organizations such as Lowell Transitional Living Center and Life Connection Center as well as the Emergency Departments in the city's two hospital campuses have welcomed the CO-OP into their space, often unannounced, to engage with mutual clients to build rapport and assist with their next steps. Life Connection Center, where many CO-OP clients frequent for meals and other services, also hosts a regular needle exchange program. Lowell House opened the first Recovery Café in Lowell. Those who attend are welcomed within a supportive environment, given opportunities to rediscover a sense of purpose, and are guided in their wellness journeys.

While the CO-OP has been very nimble in adapting to changes in the OUD community and lessons learned from ongoing experience in the field, the process to obtain some important resources has been more cumbersome. Specifically, both the hiring of a Clinical Recovery Specialist and the purchasing of a vehicle (and several related issues such as securing insurance) took a considerable amount of time. To a degree, the involvement of municipal entities complicates efforts to secure high-cost resources. However, the critical nature of both the CRS position and the vehicle to the CO-OP's successful functioning make a timeline exceeding a year frustrating.

Goal 2: Increase access to treatment for overdose survivors and Goal 3: Decreased arrest rates of those enrolled in CO-OP compared to those not enrolled

Research Questions addressed by Goal 2 and 3:

4a. Does the CO-OP model increase access to information, resources, and/or treatment for overdose survivors and individuals with opioid use disorder?

4b. Does the CO-OP model assist overdose survivors and individuals with opioid use disorder with positive progress within the stages of change?

5a. What is the effectiveness of the CO-OP interactions with clients in increasing access to information, resources, and/or treatment by people with an opioid use disorder, reducing the number of nonfatal overdose events, and in reducing law enforcement encounters (i.e., FI cards, victim, perpetrator, section 35)?

5b. What is the context that shaped the CO-OP implementation? What accelerated and decelerated the implementation process? What important lessons have we learned about how to implement the CO-OP approach that can inform and practice?

Methods

CO-OP Encounter Data. These data and the process used to obtain them was described on page 17. This set of data (baseline, historical, referral and treatment) from March 2020 through July 2021 was de-identified and transferred to the research team for analysis.

Data Analysis. A descriptive analysis of demographic characteristics was conducted and included examining age, gender, race/ethnicity, marital status, and stage of change. We also compared key demographics to those of Lowell opioid use disorder (OUD) fatalities and the city of Lowell. Line/trend charts were created to visualize the number of clients and encounters over time as well as the types of services that were facilitated by the CO-OP, the Clinical Recovery Specialist, and the Youth Outreach Specialist.

Familiar Faces Database. The creation of the database was described on page 22.

Data Analysis. Familiar Faces data including demographics (age, gender, ethnicity, race, date of the report) and narratives were de-identified and sent to UML. The data from all the service providers were then cleaned and compiled into a database and imported into NVIVO, a qualitative and mixed methods analysis software. Incident narratives were read through to identify preliminary themes, which included risk factors of substance use disorder, and police reactions to the incidents. Codes were created around these themes. Search terms were created for every code and a search query was made to pull out the narratives that fit within a particular code, then coded accordingly. Risk factors coded included mental illness, such as suicidality, substance use, overdose, community conditions of poverty, such as homelessness, and interpersonal factors, such as domestic violence. Every coded narrative was then exported by code to determine the number of familiar faces within the code, then the number of times the familiar faces were a subject, bystander, perpetrator, or victim, aiming to identify areas of missed opportunities or recommendations for community interventions.

Additionally, timelines for each of the 20 familiar faces of encounters with each service provider were plotted together on line charts.

Comparative Case Study. Originally, we proposed a difference-in-differences, in conjunction with propensity score matching, quasi-experimental design to determine if the program influences overdose and arrest rates. However, a particularly influential challenge to the research efforts resulted from an inability to staff a critical program function. The program was unable to secure, as part of the CO-OP, the desired Clinical Recovery Specialist (CRS) who was critical not only in follow through with clients, but in baseline and follow-up data collection until very late in the grant period. Through two rounds of attempts to fill this position, CO-OP partners refined the job description to attract a more suitable cohort of applicants given the tight labor market. Previous job descriptions seemed to bring applicants who were either technically qualified or fit in with the culture of the CO-OP field staff, but not both. Originally, there were going to be two part-time CRS positions in order to meet the needs of clients; however, this turned into one of the hurdles in hiring candidates. The positions were transferred to one full-

time CRS. One member of the CO-OP Team had been conducting some duties of a CRS but not to the extent that a full-time clinician could. Finally, a CRS was hired but with less than 12 months remaining in this funding timeline. As a result of this significant data gap, we changed research question #5 to the above 5a and 5b (see pages 24-25).

We altered the research plan to a comparative case study (CCS) approach (Singer, Ryff, Carr, & Magee, 2006). The CCS is a process of discovery that attends to multiple dimensions through not only comparing and contrasting but also examining linkages across units of analysis (Bartlett & Vavrus, 2017). It is a process orientation that asks "how x plays a role in causing y, what the process is that connects x and y" (Maxwell, 2013, p. 31).

Client and Non-Client Interviews. To further identify systems gaps and perceptions of CO-OP, and progression towards change, the researchers interviewed 14 CO-OP clients and 7 non-clients.

Familiar Face Demographics (14 total)

- Average age: 40
- 8 male, 6 female
- 7 white, 4 Latinx, 1 African American, 1 multiracial
- 4 completed middle school, 5 graduated high school, 2 received a GED, 2 received a Bachelor's degree

Not Familiar Face Demographics (7 total)

- Average age: 39
- 6 male, 1 female
- 3 white, 2 Latinx, 1 African, 1 multiracial
- 2 completed middle school, 3 graduated high school, 1 received a GED, 1 graduated with an Associate's degree

Questions included: How familiar are you with the CO-OP team and what they do? How did you come to learn of the CO-OP team and what they do? Can you tell me about how you have interacted with them? What are or were the interactions like? How did the CO-OP team assist you? What kinds of services did the Team tell you about, if any? Were you able to access the things they told you about? If no, why were you not able to access the services? What has been your most memorable moment with CO-OP? How would you describe your life today?

CO-OP Team Group Interviews. After a review of data from and about familiar faces, the research team conducted a group interview with the CO-OP Team to determine alignment with their perceptions and solicit ways to change policy or practice as suggested by data themes in order to improve service and best practices. Researchers consulted existing research in relevant service and intervention areas to inform how we think about current and future practices. This review helped inform how we understand and utilize the data going forward. An additional group interview was conducted to draw out comparative case study data and document challenges and possible solutions moving ahead.

Process Interviews. In addition, semi-structured interviews were conducted with members of the CO-OP team including supervisors to document context, successes and challenges, accelerants

and decelerates of the implementation process, important lessons learned about how to implement the CO-OP approach that can inform and practice.

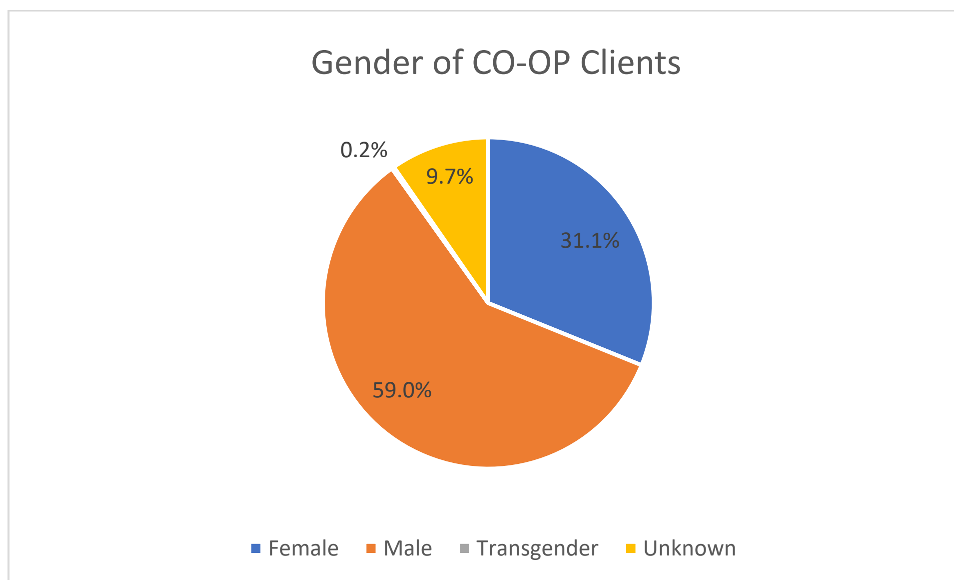
Data Analysis. Qualitative data from interviews/case studies were analyzed through identifying themes that arose with particular attention to phrases and/or concepts that informed the research questions. All audio-recorded interviews were transcribed and uploaded for analysis into NVIVO, which uses code-and-retrieve techniques to identify and display text segments with the same code. This makes it possible to review, interpret, and analyze large amounts of text data. Before the analysis proper began, a coding tree that focused on the topics found in the literature and covered in the interviews, as well as any emergent themes was developed. The process of analyzing qualitative interviews was an ongoing one, and the entire research and evaluation team was able to listen to and discuss interviews to ensure that any emergent issues were incorporated into subsequent interviews and analyses. Data were de-identified and were reported in the aggregate and included recommendations from the interviewees and evaluator point of view as well and served as the foundation for data-driven decisions regarding future activities.

Results

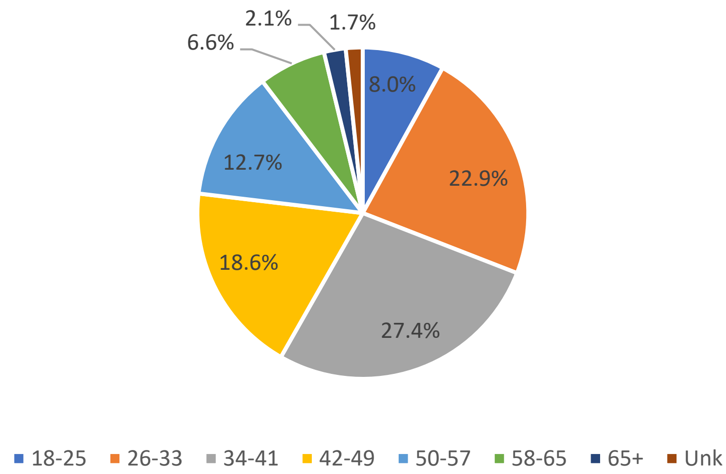
Characteristics of the CO-OP Clients

The data gathered from Lowell CO-OP included demographics of clients, number and nature of encounters and referrals, assistance offered, and perceived stage of change the client was in.

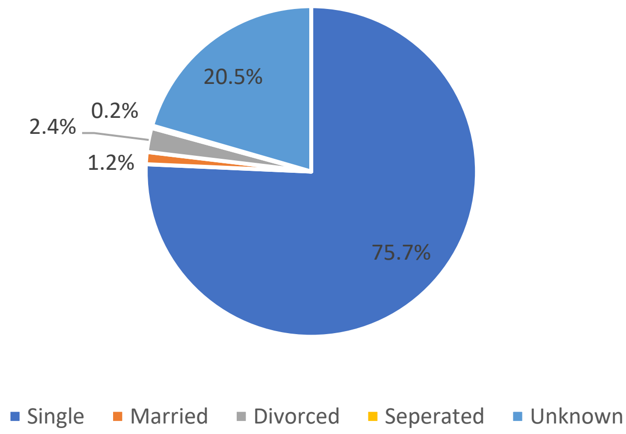
CO-OP Client Demographics



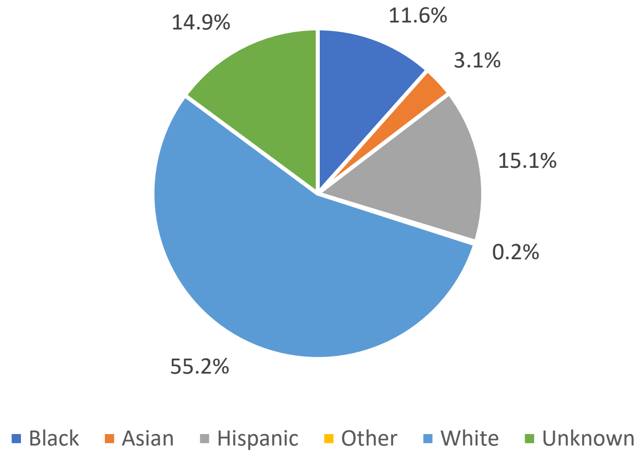
Age of CO-OP Clients



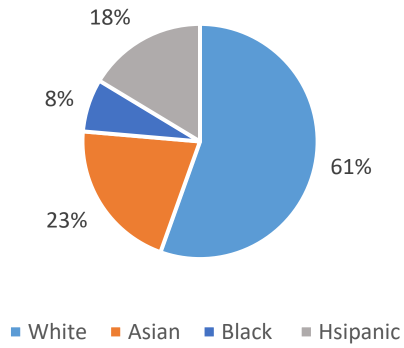
Marital Status of CO-OP Clients

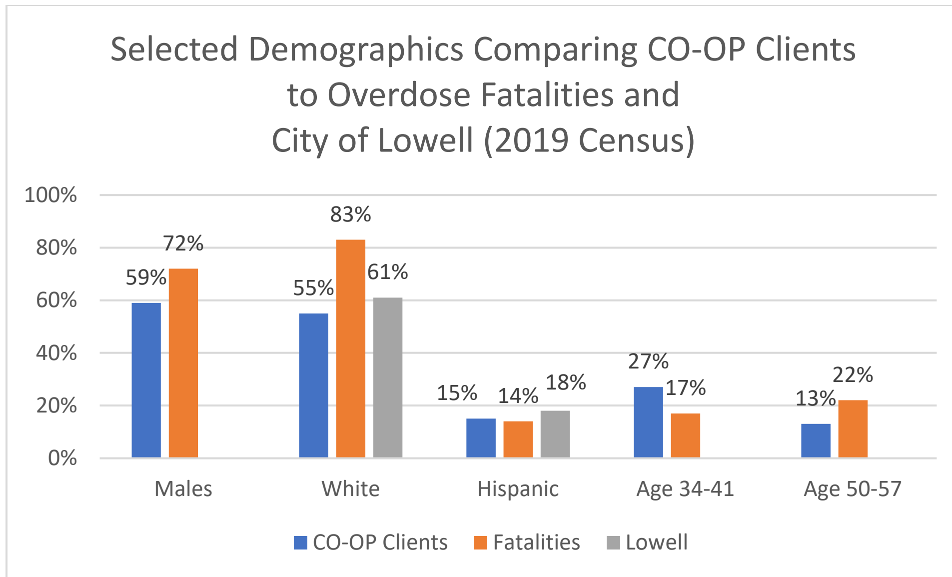


Race/Ethnicity of CO-OP Clients



Race/Ethnicity Lowell
US Census 2019 est

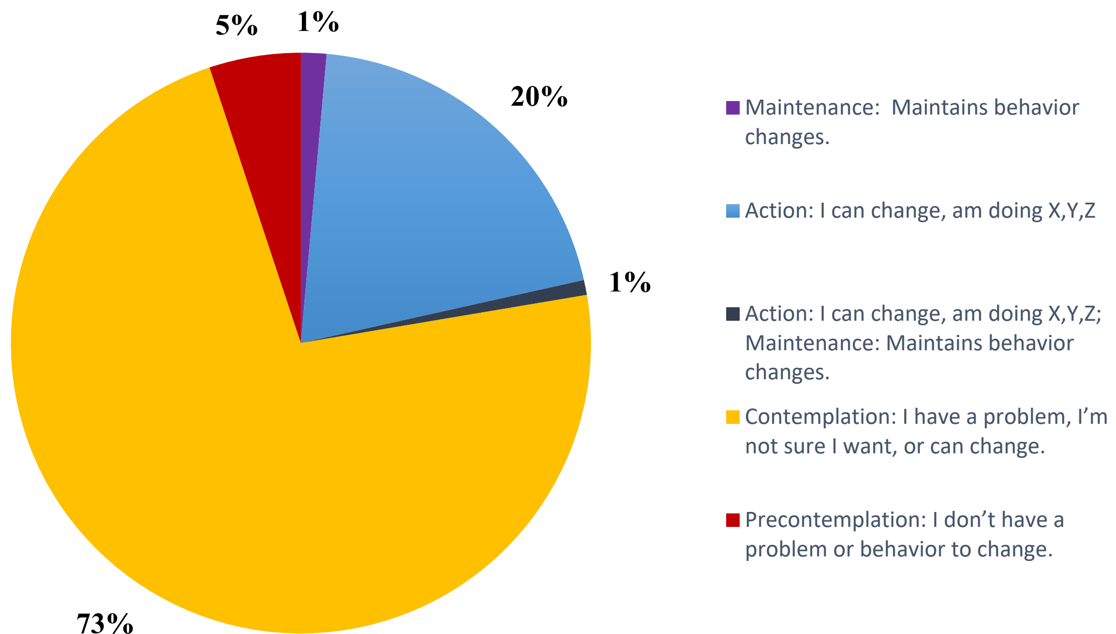




While not all the same data are obtained from the CO-OP clients that are documented for opioid related fatalities, comparing the demographics to what is available, there was a smaller percentage of the clients versus fatalities who were males (59.0% vs 71.9%) and white (55.2% vs 82.7%), but still the majority in both sets of data. There was a larger percentage of the clients than the fatalities that were between the ages of 34 and 41 (27.4% vs 16.8%), which was the majority age group for clients but not fatalities which was ages 50 to 57 (21.9% of fatalities and 12.7% of clients). The percentage noted as Hispanic was 15.1% for clients and 13.8% for fatalities. Comparing to race/ethnicity census data for the city of Lowell, 18% of the population was Hispanic and 61% white. It is important to keep in mind that the data were from different timeframes.

Stages of Change

The CO-OP was trained on the stages of change; what each stage might look like, what are the ways a person might indicate what stage they were in. After each encounter with a client, the CO-OP documented their perceived stage of the client.

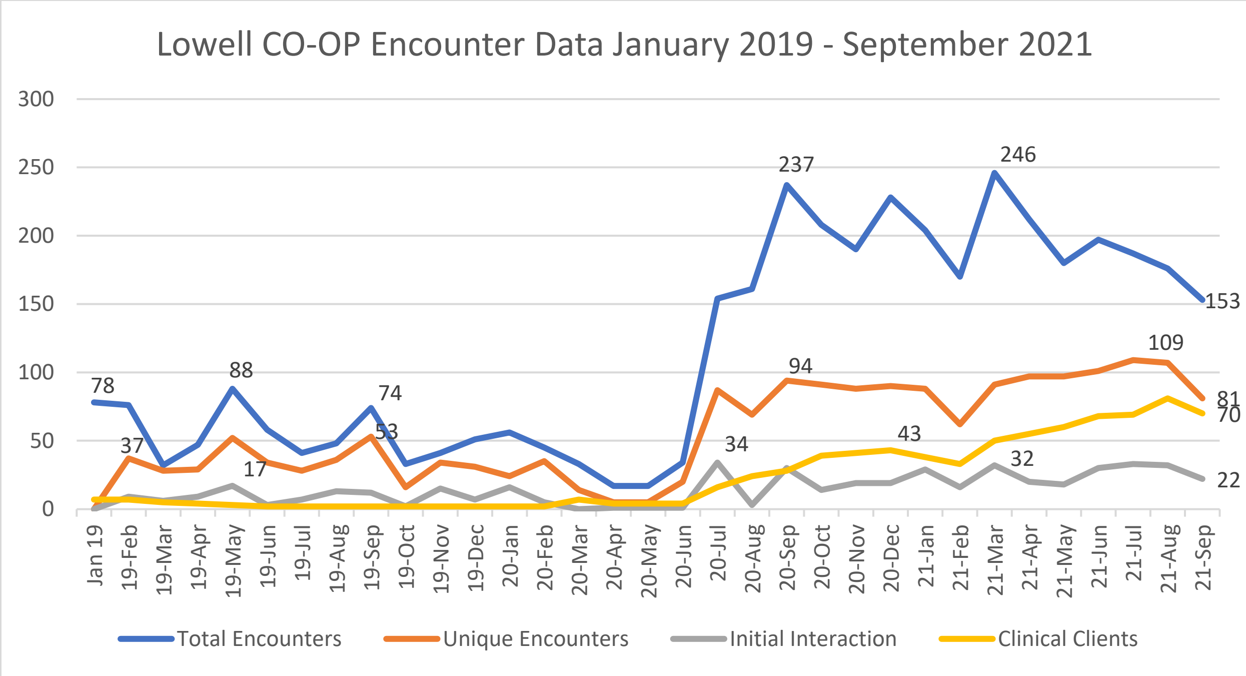


Almost ¾ of the time clients were noted as contemplating change and 20% of the time clients were noted as taking action to change.

Increased Access to Information, Resources, and/or Treatment

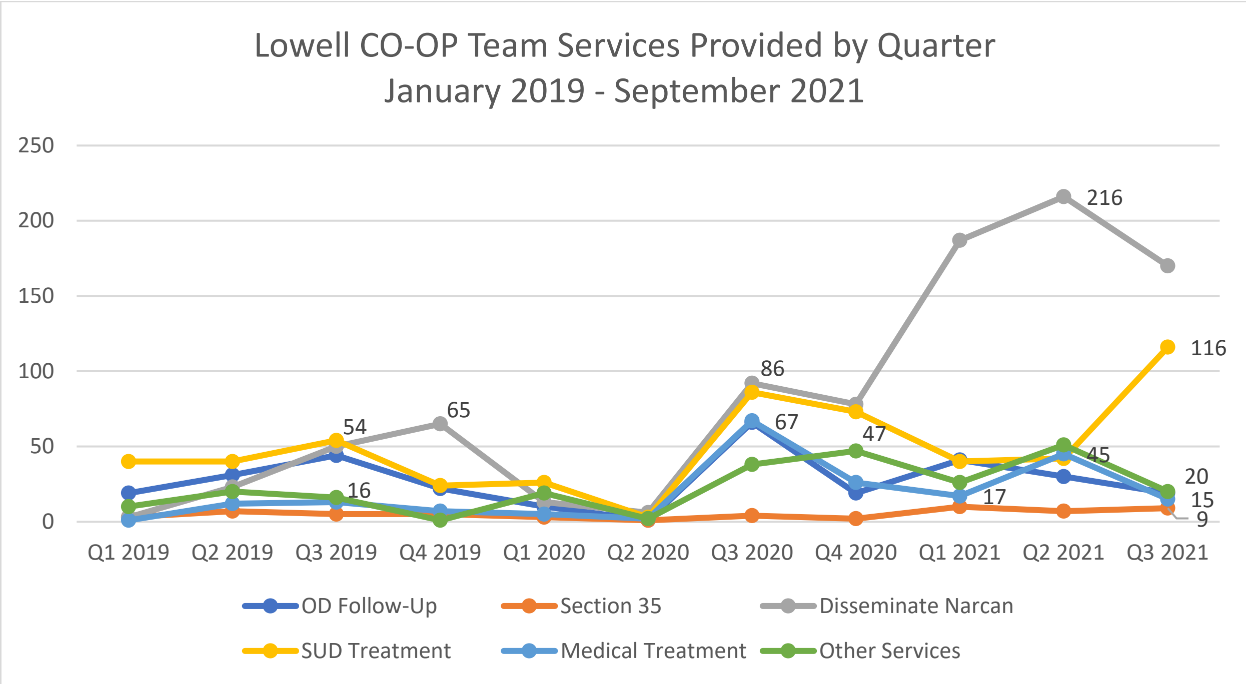
Below are aggregated data about outreach and referrals by the CO-OP and Clinical Recovery Specialist.

CO-OP Team Outreach. The chart below shows the CO-OP total encounters and unique encounters as well as the number of initial interaction and clinical clients by month. See data chart in the Appendix for more details.



The total number of client encounters reached over 200 in September, October, and December of 2020 and January, March, and April of 2021. Unique encounters reached a high of 94 in September of 2020 and 109 in July of 2021. Clinical clients reached a high of 81 in August of 2021.

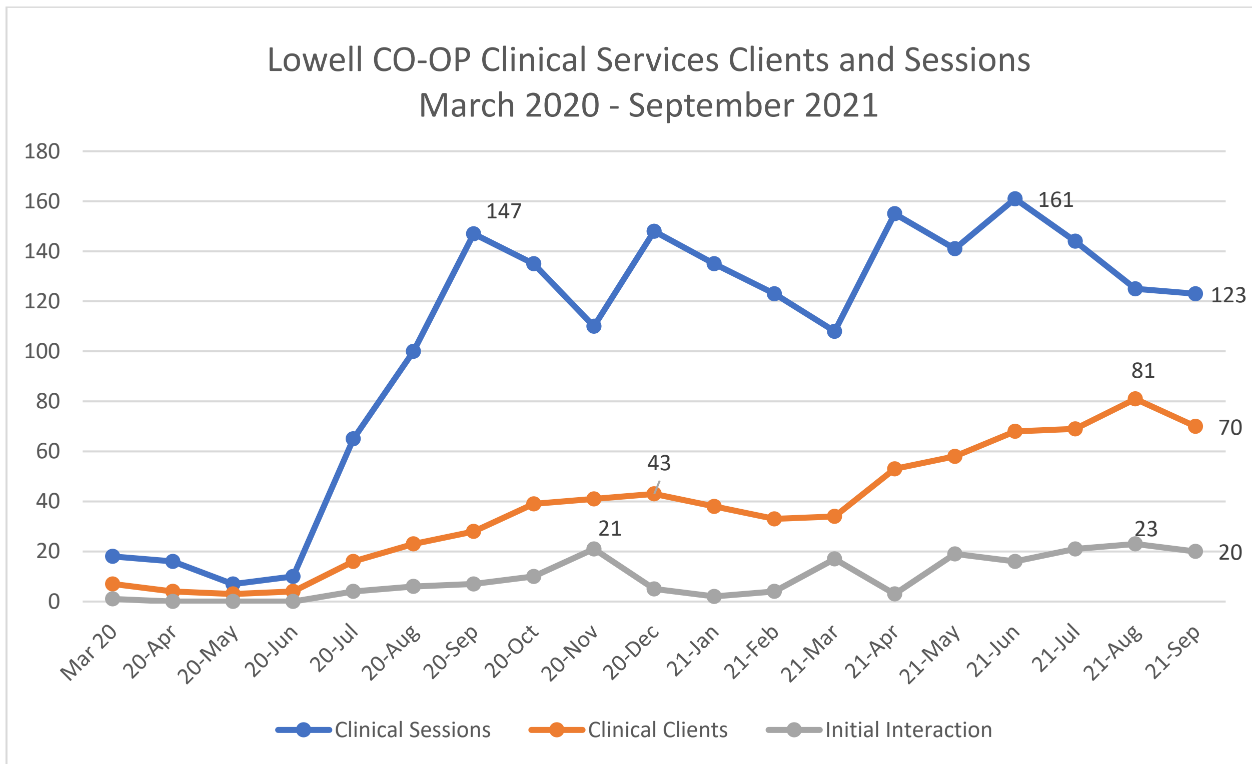
CO-OP Team Services/Information/Resources. The chart below shows the referrals and other services the CO-OP Team facilitated for clients. See data chart in the Appendix for details.



Some highlights include:

- In quarter 2 of 2021 the team disseminated Narcan 216 times.
- In quarter 2 of 2021, the team made 116 substance use disorder related referrals.
- In quarter 3 of 2020 they made 67 overdose follow ups and 67 medical treatment referrals.
- In quarter 1 of 2021 they made 17 referrals for Section 35.

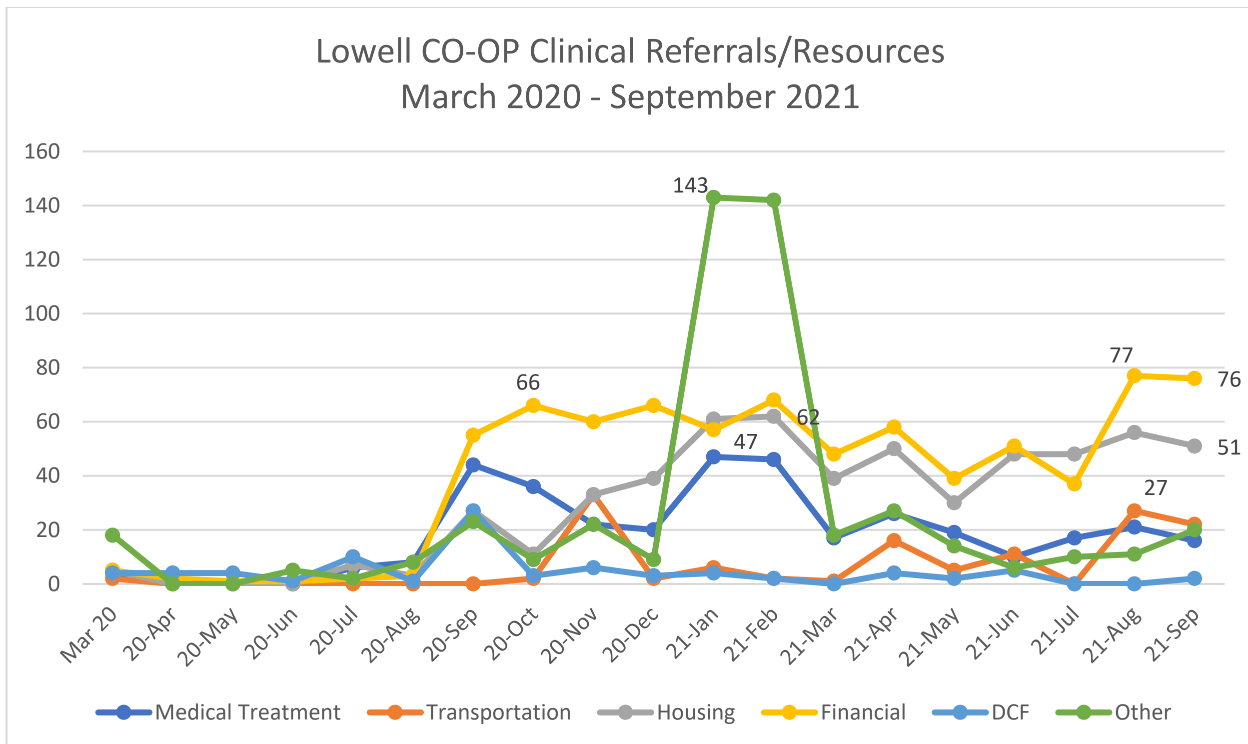
Clinical Services. The chart below shows the number of Clinical Recovery Specialist clients, sessions, and initial interactions. See data chart in the Appendix for more details.



Some highlights include:

- In quarters 3 of 2020 and 2 of 2021 the CRS had the highest number of sessions (147, 161).
- In quarter 3 of 2021, the number of clients was at its highest at 81.
- In quarter 3 of 2021, the number of unique encounters reached a high of 23.

The chart below shows the types of services the Clinical Recovery Specialist facilitated for CO-OP clients. See data chart in the Appendix for more details.



Some highlights include:

- In quarter 1 of 2021 there was a high of 143 referrals to medical treatment.
- In quarter 3 of 2021, transportation referrals jumped to 27.
- By January 2021, referrals to housing climbed to 62 and remained steady through the end of September 2021.
- Between August 2020 and October 2020, financial assistance climbed to 66 and remained steady with a high of 77 in August of 2021.
- Referrals to the Department of Children and Families (DCF) remained low through the grant period.
- All other referrals had a large uptick from December 2020 through February 2021 (143, 142) with a large drop in March of 2021.

Clients are Positive About their Engagement with CO-OP

Clients, in interview with researchers, stated that the CO-OP has helped them to enter detox, find jobs, facilitate connections with other programs (e.g., Life Connections Center), get into a shelter, get access to other housing, obtain identification (IDs, social security cards, birth certificates), and obtain needed clothing. Some clients also explained how the CO-OP goes above and beyond. They use creative ways to help connect people to the services they need. One interviewee stated that "…feels like life has gotten better since [interacting with] CO-OP." Another shared:

> *"They're really reliable so once they start something they won't stop it halfway through. They go until it needs to be done. Like the disability case I got. I got denied three times*

and now, since I got CO-OP helping me, the clerk magistry guy is being more lenient because now he knows that I have somebody from the city helping me."

"Detox I did it because I was alcoholic. And to get out the street, but I'm back on it, back on the street, so you know. But they're helping me. They'll still watch out for me"

Clients Exhibit Sense of Agency

A closer look at the client and nonclient interviews provides a picture of agency that clients exhibited. Agency can be described as the capacity a person has to think and act for themselves and to affect change, shaping their environment and life. Agency is seen in these narratives in that the clients are engaging in self-reflection and are striving to take control over their lives again. Some quotes exemplifying this include:

"From I mean since 2018 I've been just homeless and out of control and like just lately this past couple of weeks I've slowed down and I'm starting to take care of myself and realize what it what it's doing to me so. Trying to do the right thing you know."

"It could be a little bit more balanced to what I'm trying to balance anow. But you know it could always be better and it could always be worse. So, I'm actually content that now and in the direction I'm going to maybe try to make a change."

"I'm in the process of working on it. I'm sober, I've been sober for years. I'm getting an apartment in a few weeks. Upstairs from the shelter and it's going well. It's better."

"I went out and got plastered one night after being sober for two years and did some stupid stuff and got myself thrown out of shelter for yelling at everybody. So I walked up to [CO-OP] the next day, and I say, Can you get me back on the shelter?"

"I get to Lowell, then we meet this guy, Bob. He's telling me "You'll never get out". And I said Bobby you don't know me. I'll get out of here in three weeks..... And not as a homeless guy- as a traveler."

"I know how I can get when I get mad so I'm like, eh not trying to do that…"

"If you don't talk to somebody, you can't get your life better."

Some clients described trying to overcome challenges, such as approaching the CO-OP to ask for help and attempting to change their trajectory by working towards recovery (or sobriety). One client had the self-insight to acknowledge that they had a setback and showed agency in going up to the CO-OP the next day to ask for help. This sense of agency is what sets apart the client interviews from the non-client interviews. Because clients knew about the CO-OP and engaged with their services, they were able to more actively take the steps to change their lives more readily.

The CO-OP has been Effective at Getting the Word Out about the CO-OP

Interviews with the CO-OP clients indicated that the CO-OP was known within the community. Most clients interviewed described hearing about the CO-OP through other people who work with the CO-OP and people they met in the shelter or around the area. Others mentioned that the CO-OP went directly up to them to introduce themselves. One client mentioned that they

introduced people in the shelter to the CO-OP because they believed that is a faster way to get what they need.

> *"I've brought a lot of people over there from the shelter… because people walk in and they start asking me questions, and they're like, what do I do? And I go, you want help right away? I walk them right over to Joe and say, Hey, this kid needs help."*

Clients mentioned how the CO-OP team was always out talking to people around the Sheriff's Office, which is also home to the CO-OP office, and even going to known campsite areas to check up on people. They mentioned that CO-OP was reliable, honest, and always there to help.

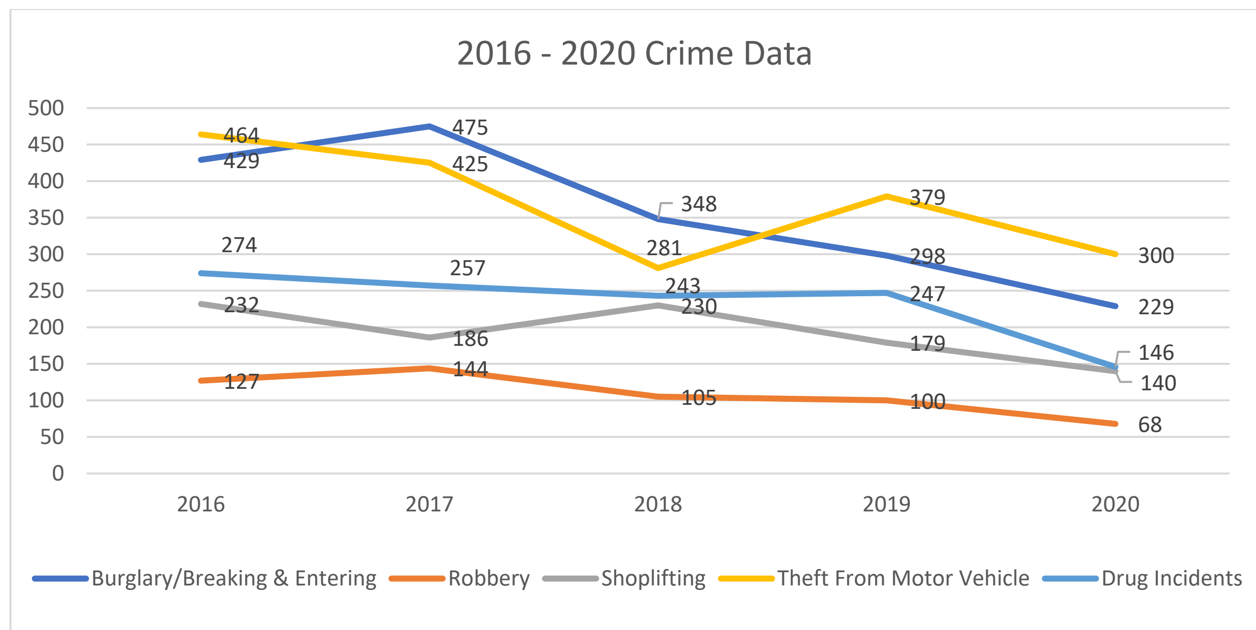
Some of the people interviewed that were not clients had not heard of the CO-OP yet but seemed interested in wanting to learn more about them. Some had been told about them from someone else or by the CO-OP themselves but were just not ready to utilize their services yet or did not want to use their services. One participant said they did not use their services because they could get services through Veterans Affairs.

> *"They should have like say at the park, they should have a booth to inform people. Because the more people that's there- Okay it's like being a father, my friends back me up. The more people there, can back them up, so they get the confidence to believe what [CO-OP Team member] was saying."*

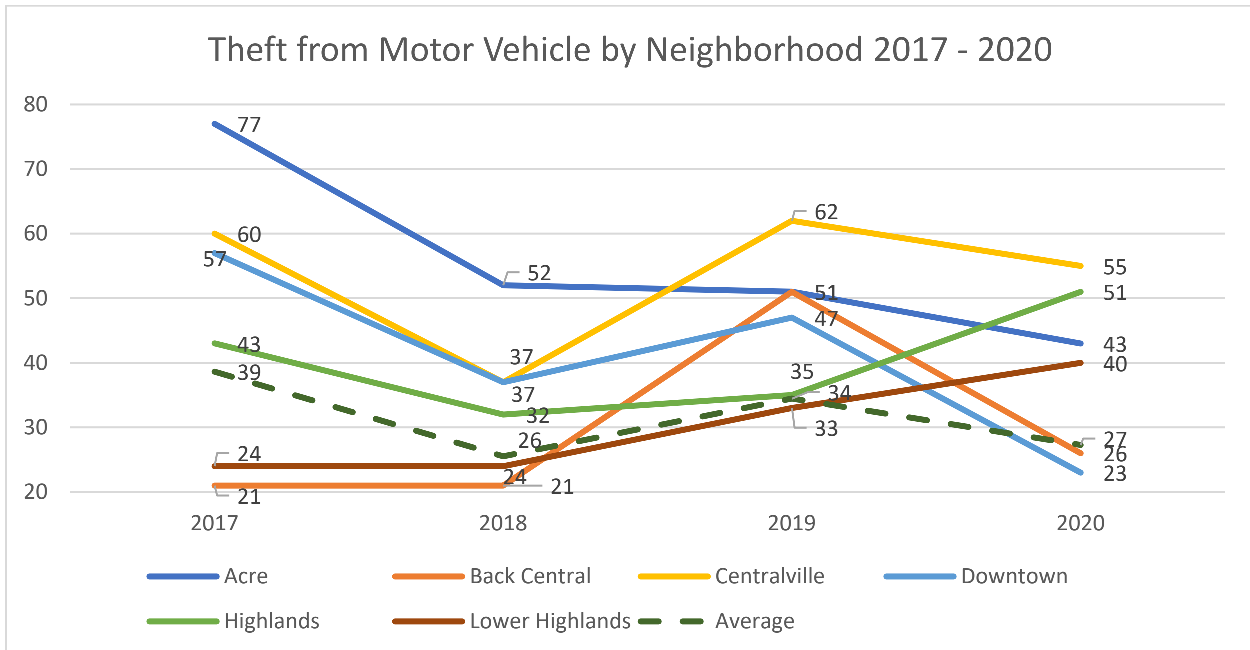
Some suggestions made by the people who do not utilize the CO-OP services include building trust and helping increase people's self-esteem and increase the confidence people will have that the CO-OP can help them.

Decline in Crime often related to Drug Use between 2016-2020

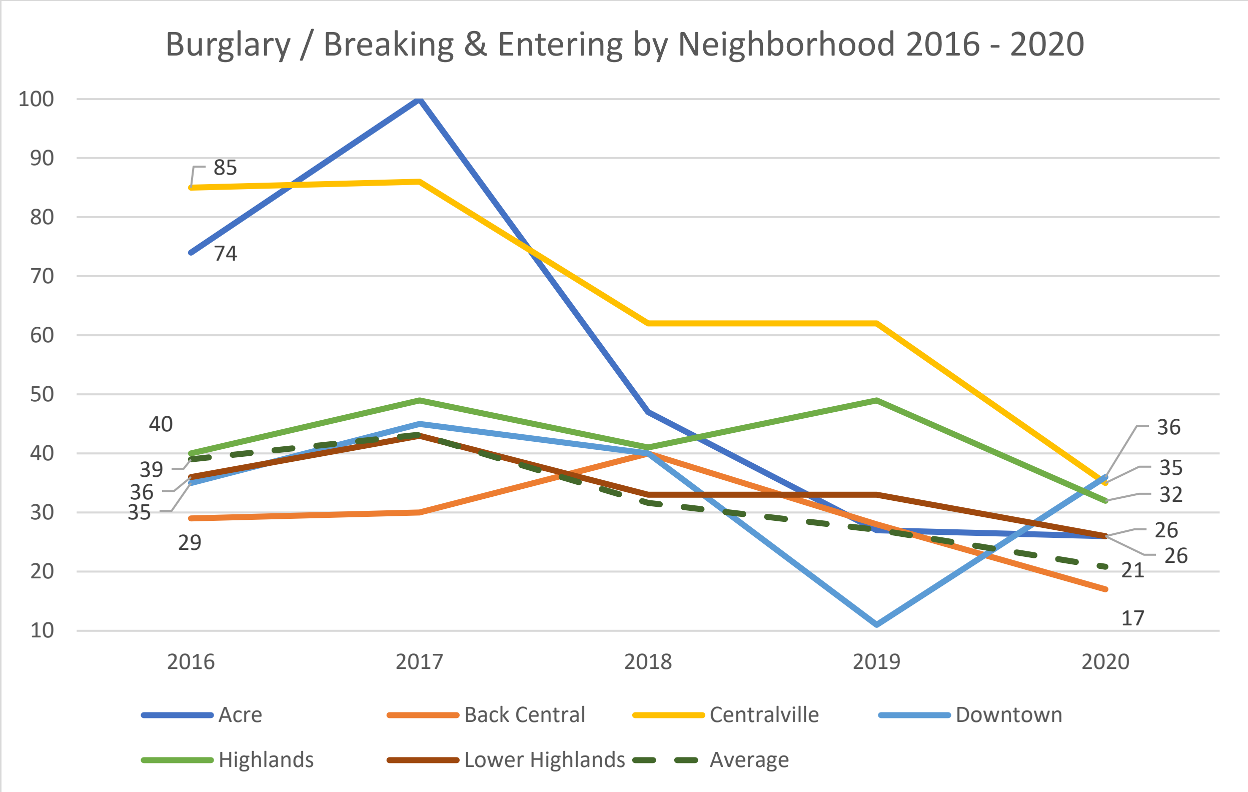
The tables below depict various crime occurrences from 2016-2020. The crimes chosen were ones that are most closely aligned with drug use in the city of Lowell.



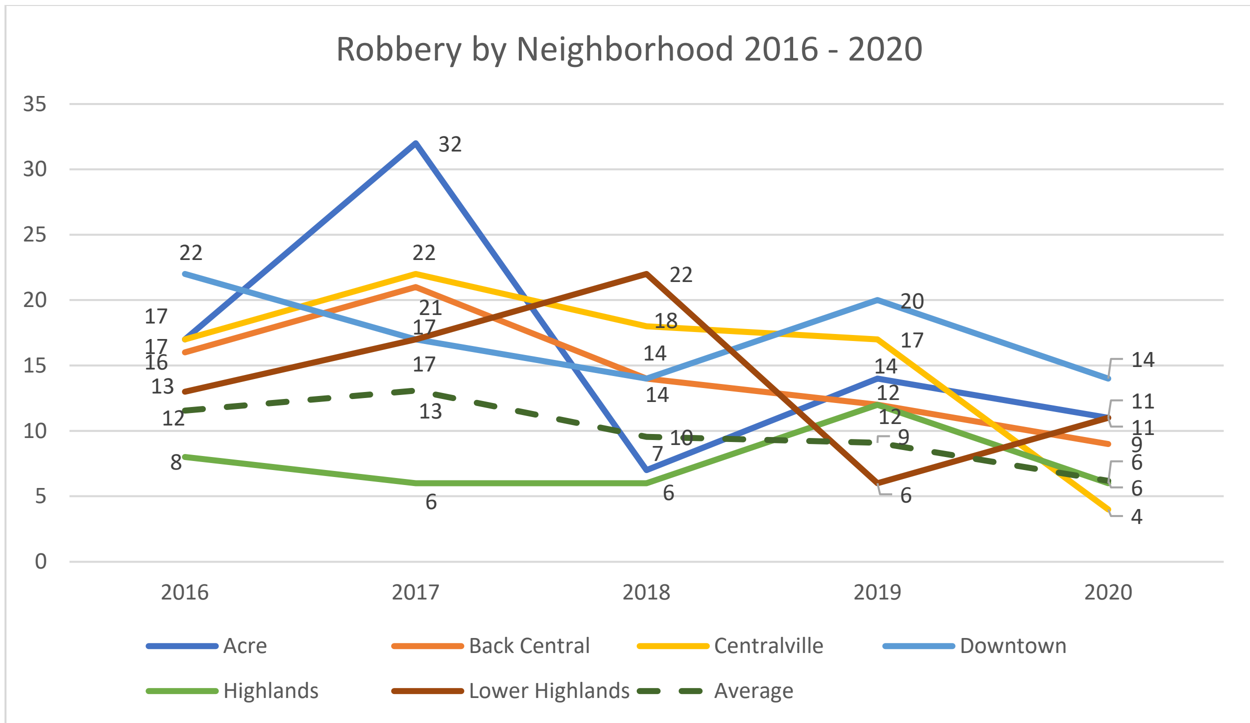
Above shows burglary/breaking and entering, robbery, shoplifting, theft from motor vehicle and drug incidents all ending lower at the end of the time period and all but theft from a motor vehicle and shoplifting trending down each year.



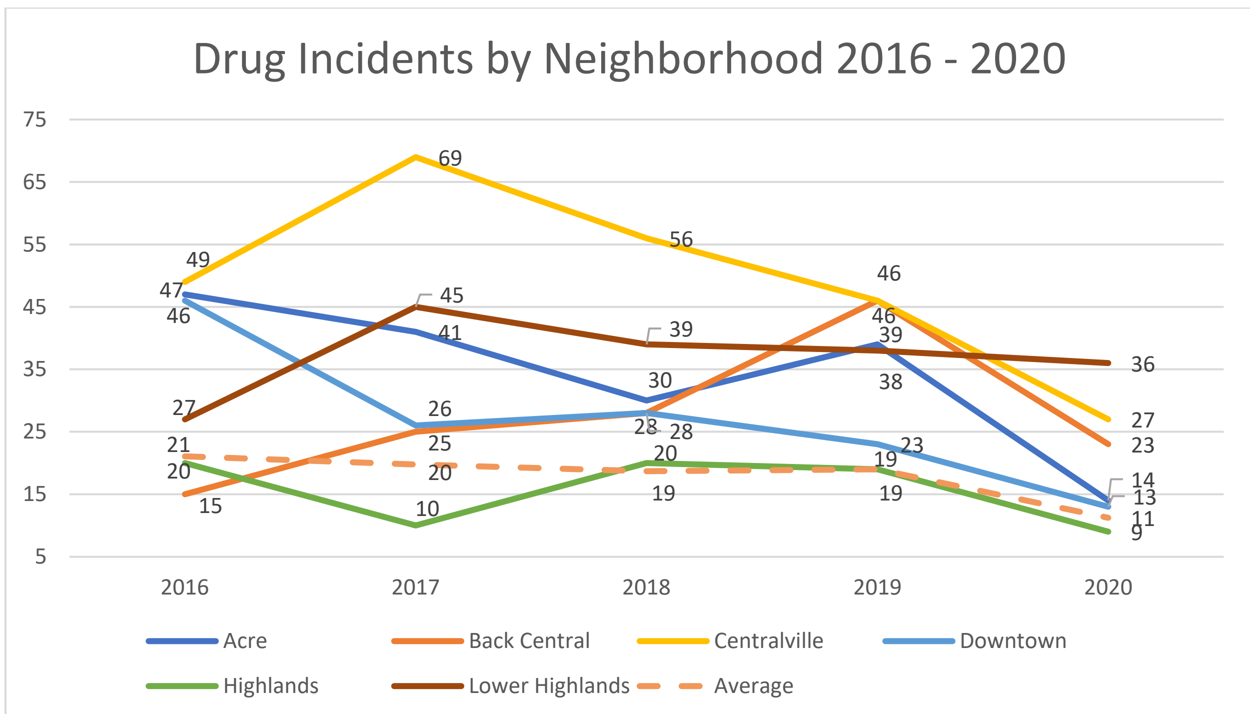
Above shows theft from a motor vehicle from 2017-2020 in the hardest affected neighborhoods in Lowell and the average trend line for the city overall. Centralville started second highest and ended the highest, though the total number of thefts actually decreased from 2017 to 2020. The Acre started the highest and ended the third highest. The Highlands and Lower Highlands trended upward while Downtown trended down and Back Central had a peak in 2019 then trended down for 2020. Between 2017-2020, thefts from motor vehicles across the entire city decreased 29%. They decreased in the Acre by 44%, Centralville by 8% and Downtown by 60%. They increased in the Highlands by 19%, Lower Highlands by 67%, and Back Central by 24%.



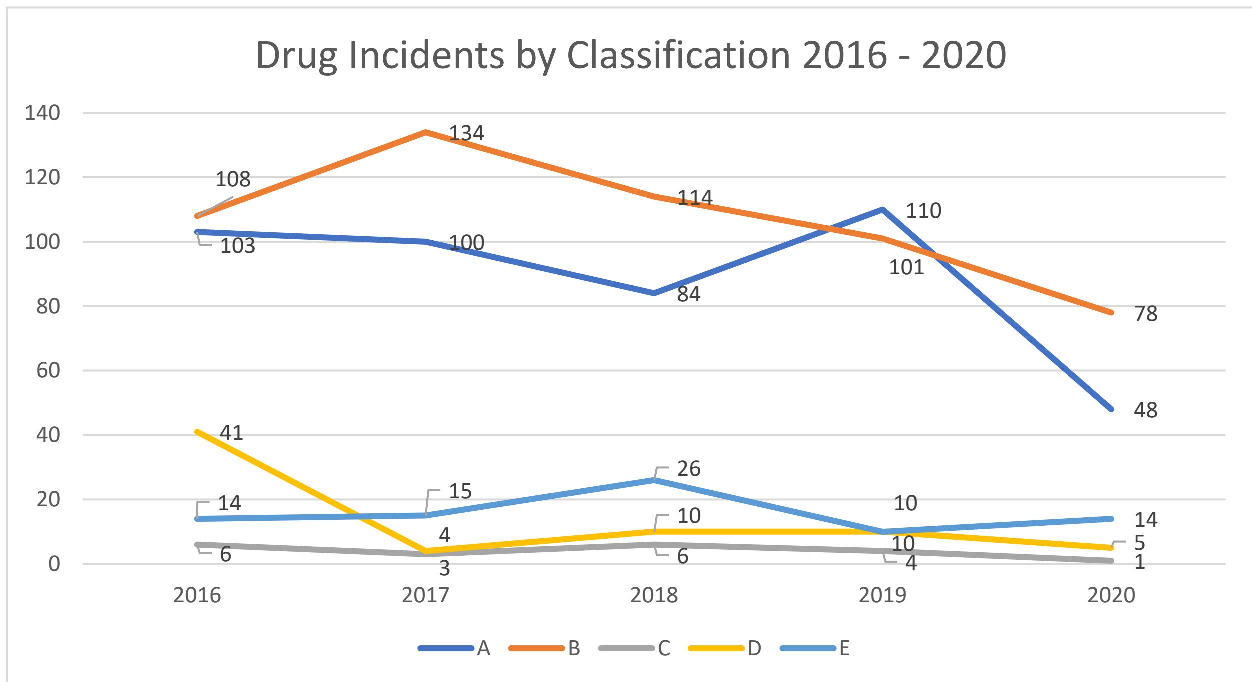
Above illustrates burglary/breaking and entering occurrences ended lower in 2020 in all the above neighborhoods except Downtown. Overall, the city saw a decrease of 47%. Centralville was down by 59%, the Acre by 65%, the Highlands by 20%, Lower Highlands by 28%, and Back Central by 41%. Downtown was up 3%, from 35 incidents to 36.



Robbery trended downward across the city (-46%) and in all the above neighborhoods ranging from 15% decrease in the Lower Highlands to 76% decrease in Centralville.



Drug incidents trended down in the city overall (-47%). Decreases ranging from 45% (Centralville) to 70% (Acre) were seen in all but Lower Highlands (+33%) and Back Central (+53%).



Above shows drug incidents by drug classification from 2016 through 2020.

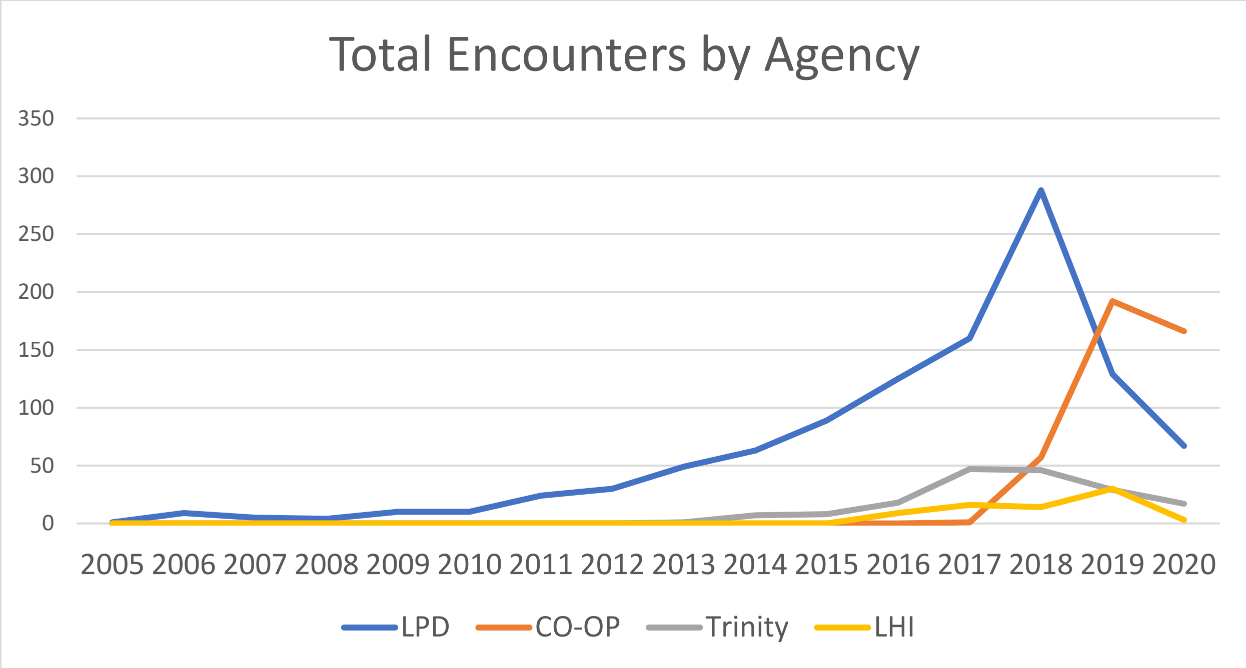
- Class A: Examples include heroin, morphine, fentanyl, carfentanil, or ketamine.
- Class B: Examples include cocaine, methamphetamine, PCP, or MDMA (aka ecstasy).
- Class C: Examples include valium, synthetic marijuana, "bath salts" or peyote.
- Class D: Examples include marijuana[8] or barbital.
- Class E: Compounds with small percentages of codeine, morphine, or opium, gabapentin or prescription drugs not listed in any other class.

All drug incidents have trended down with the exception of Class E incidents. It is important to note that marijuana became legalized in Massachusetts at the end of 2016. Additionally, fentanyl, carfentanil and other synthetic opioids were updated to Class A from Class B drug classification in Massachusetts in 2018.

Increased CO-OP Team Encounters coincides with a Decrease in Law Enforcement Encounters

The table below charts the aggregate number of encounters with the familiar faces by LPD, CO-OP, Trinity EMS, and Lowell House. It indicates a trend upwards for services through 2018. As CO-OP encounters increased starting in 2017 through 2019, the LPD encounters decreased.

[8] Marijuana has been legalized in Massachusetts and medical marijuana has been approved for qualifying patients.

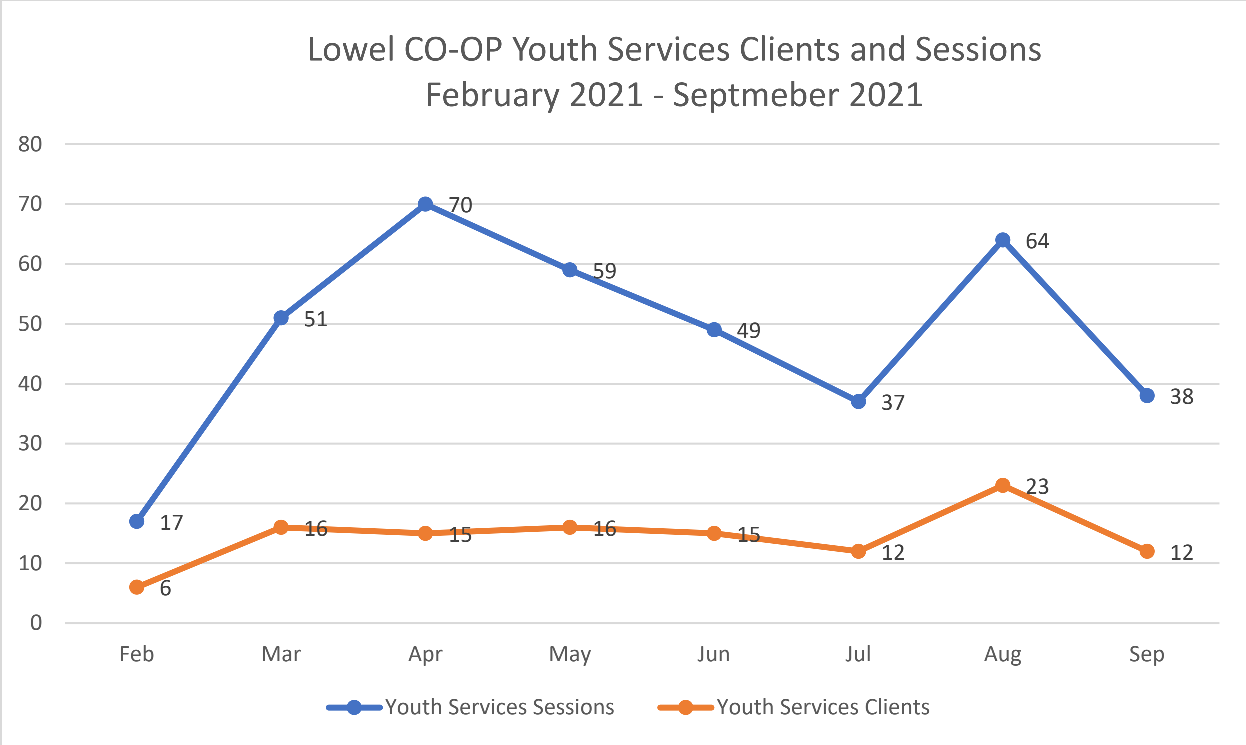


Goal 4: Reduce in the effects of trauma experienced by children impacted by opioid overdose

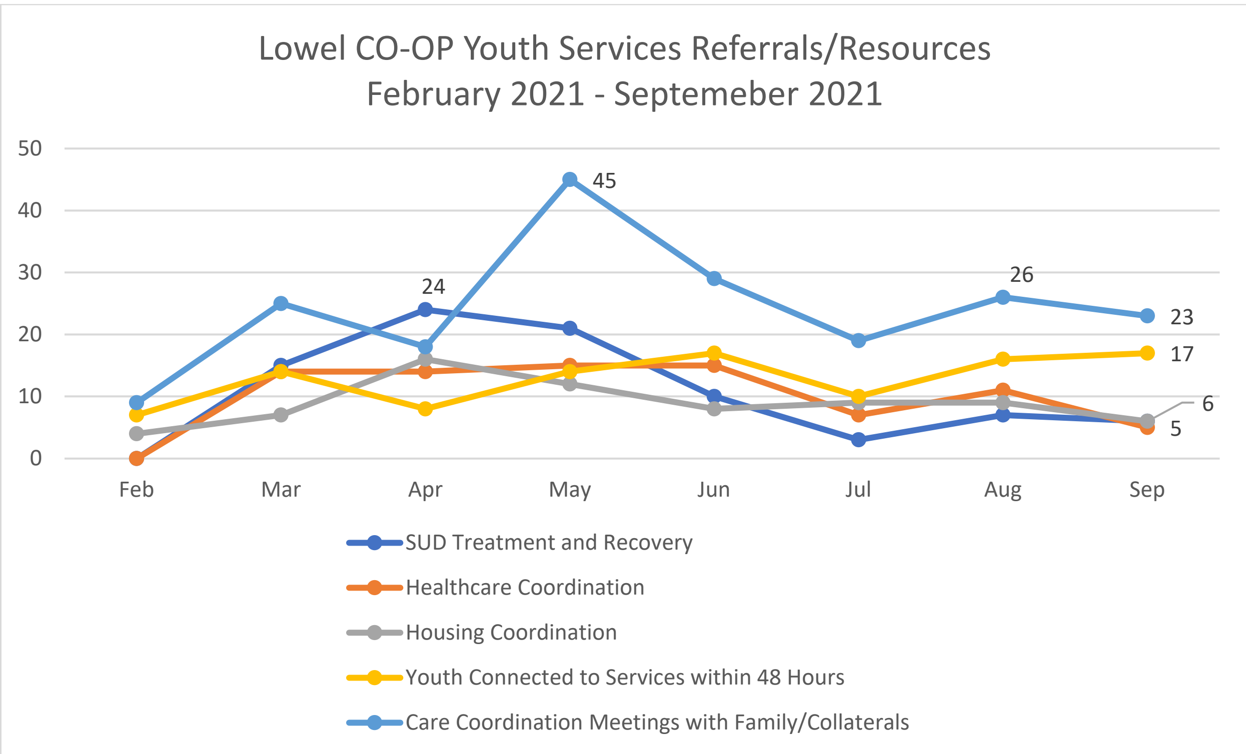
While the research questions under this goal were eliminated, the Youth Outreach Specialist collected encounter data within a database similar to the core CO-OP team database.

Data Analysis. Two line/trend charts were created that illustrate the number of clients and encounters over time as well as the types of services that were facilitated by the Youth Outreach Specialist.

Youth Services. The chart below shows the number of Youth Services clients and sessions. See data chart (Appendix B) for more details.



Youth Services clients remain steady across this timeframe with a high of 23 in August of 2021. Sessions rose to 70 in April 2021 and average 48 per month.



Care coordination meetings with families and collaterals remains the most frequent service. Substance use disorder treatment and recovery services reached a high of 21 in April 2021. Youth connected to service in 48 hours saw a high of 17 in June and September 2021. Healthcare and housing referrals remain at a steady low rate.

Goal 5: Inform research, policy, and future programs for adults and children impacted by opioid use disorder in Lowell and other cities struggling with similar issues

Research question addressed by Goal 5:

5a. What is the effectiveness of the CO-OP interactions with clients in increasing access to information, resources, and/or treatment by people with an opioid use disorder, reducing the number of nonfatal overdose events, and in reducing law enforcement encounters (i.e., FI cards, victim, perpetrator, section 35)?

5b. What is the context that shaped the CO-OP implementation? What accelerated and decelerated the implementation process? What important lessons have we learned about how to implement the CO-OP approach that can inform and practice?

6. What are the characteristics of the targeted people with opioid use disorder (e.g., demographics, criminal history, criminal justice supervision; probation and/or parole conditions; initial use profile, usage patterns, interventions attempted, not attempted)?

Methods

Encounter Data Analysis and Familiar Faces Database and Client Interviews. These tools (as described on pages 17, 22, and 37) helped to determine the success of the program and examine characteristics and histories of people with opioid use disorder, which can potentially offer direction in determining future targeted programming and policy reform.

Validity

Qualitative Data. The process of analyzing semi-structured interviews was ongoing one, and the research team monitored and debriefed interviews in order to ensure identification of emergent issues and incorporate them into subsequent interviews and analyses. This analytical process will be documented in an audit (decision) trail specifically developed for this project.

Qualitative research of this nature required the qualitative evaluation concept of *justifiability of interpretation* in order to take into account subjectivity and interpretation. Thus, qualitative studies employ different criteria for methodological rigor compared to quantitative studies.

The criteria used to check against the tendency of a qualitative researcher of imposing his or her own subjectivity in data analysis includes *transparency*, *communicability*, *coherence,* and *confirmability* (Auerbach & Silverstein, 2003). In order for qualitative data analysis to be justifiable it must be *transparent*, which means that others are made aware of the steps by which the researcher arrived at his or her interpretation (Auerbach & Silverstein, 2003). This check is accomplished through clearly describing the process of data collection and analysis and being consistent (Whitley & Kite, 2012). *Transparency*, also referred to as *dependability* (see Whitley & Kite, 2012), does not mean that other researchers need to actually agree with the researcher's interpretation; however, they only need to know how he or she arrived at it (Auerbach & Silverstein, 2003). Transparency will be achieved in this application by the development of a

code book, coding tree, and an audit (decision) trail; this process will provide a clear enumeration of study decisions made, particularly in terms of coding and analysis.

In order for the data analysis to be *communicable*, the themes and constructs must be understood by, and make sense to, other researchers (Auerbach & Silverstein, 2003). *Communicability* does not mean that other researchers would have to come up with the same themes, constructs, or concepts, or agree with them; however, it does means that the themes or constructs need to be explainable so others will understand why the researcher has arrived at his or her conclusions (Auerbach & Silverstein, 2003). *Coherence* means that theoretical constructs or concepts must fit together so that the researcher can tell a *coherent* story (Auerbach & Silverstein, 2003). *Communicability and Coherence* are achieved in this analysis by the adoption of a step-wise coding scheme: o*pen coding, axial coding*, and *selective coding.* In order to obtain *confirmability*, researchers considered and contained discrepant information which provides a truer picture, increasing credibility.

Quantitative data. The *Relational Coordination Scale* has been validated for internal consistency, interrater reliability and structural and content validity (Gittell, Seidner & Wimbush, 2010; Gittell, 2002).

Results

Understanding of Challenges has Evolved and Gaps have been Identified

Two client stories (using pseudonyms) were shared with researchers that illustrate common and unique challenges for people with substance use disorder and potential opportunities for different levels of intervention.

> Outreach is about building a relationship with that person; making a connection to build trust and show you care. Over time, the outreach worker can make recommendations, plant seeds. ~ The CO-OP

Trevor came to be known to the CO-OP through traditional street outreach means at a homeless encampment. He was in active addiction and had no desire for treatment. Moreover, he attempted suicide by jumping off a bridge. He survived but suffered physical injuries. The team shared with us that their approach with this client really focused on his overall well-being. They shied away from any reference to his substance use disorder or even his drug use. The reasoning here is that engaging generally would help establish rapport and trust. With this client, this process took about an entire year of general conversations. During this time, the client was clearly resistant to treatment, but the priority was to maintain communication. During this time, the team did learn that the client is a registered sex offender, though the label seemed inconsistent with the nature of the person the team was coming to know.

The sex offender label is very limiting and creates massive barriers for people. It makes just living your life very difficult; you are even shunned by the drug using community. In this client's situation, the problem was exacerbated by the numerous online articles written about the case, which goes back almost a decade.

Fast forward to today and the client is ready for detox. While the client successfully cleared a 60-day detox protocol, he returned to live in a tent in Lowell. The client eventually got into a sober house in the Lowell area. However, the critical point here is that the CO-OP who had been

working with him for a long time met with him to make his transition from a tent to a sober living situation much easier. The client is still a resident of this sober house, is currently earning his credentials as a recovery coach, and actively works on all aspects of his recovery. He is at a point where he seems to have knowledge about himself and his emotions, which makes him very aware of the steps he has to take in his recovery. All this being said, his legal status as a registered sex offender greatly complicates this progress.

This status makes it difficult for both the little things and the big things in life, such as housing. The next step for this client will be to coordinate with the Justice Resource Institute on getting the appeal process moving to where his sex offender status is legally dropped. There is hope that this can happen, based on the circumstances of the case and the age of the client when the offense occurred. The client has been motivated by his ability to reconnect with his two children. He is in a relationship, and they are looking to move into their own place.

A second client, Mariel, served by the CO-OP has not progressed as far in her recovery. Mariel is in her mid-30s with an active substance use disorder, including alcoholism. While she has had some success in the past embracing sobriety, the presence of a great deal of trauma in her background has made it very difficult for her to avoid relapse. Losing both her mother and custody of a child has been extremely difficult for her. While she does possess a housing voucher, she remains homeless. Mariel has fallen into the routine of "two steps forward and one step back." Her grief and PTSD are significant barriers to her recovery; she has a pattern of starting well but not finishing. She is aware of her situation and while she does not want to be in active addiction, the fact remains that she is. The CO-OP understands that trauma changes the way your brain functions, it changes your mind and your ability to make decisions. She is filled with grief and anger. Her path to recovery is ongoing and the CO-OP will continue on this on this journey with her.

The CO-OP understands that for most clients, their past provides significant continuing barriers to their recovery. Whether the past manifests as sex offender status or as trauma, it can pose significant legal, institutional and psychological challenges to the recovery journey and creates fear in the mind of the client. Clients struggle walking through the fear, and people working with them need to keep in mind that there is a very real and legitimate fear of failure, of being disappointed, of success, etc. In addition, it is very easy for the substance use disorder lifestyle to become routinized in clients' lives; living on the streets, the process of getting high and the life that comes with that. This alone is something clients have to be ready to leave if they want sobriety, and this can be very scary.

The CO-OP expressed some individual level interventions. The people they encounter are often stuck in their own heads thinking about the troubles of their past, blame, and guilt and the possible challenges and fears of the future. The CO-OP believes assisting clients with tools to be in the present state of mind could be impactful. These include reiterating certain phrases such as, "you are not your thoughts", meditation, or some spiritual connection they offer clients.

Services are abound in the Greater Lowell area however; the CO-OP identified the need to increase the capacity for certain services:

*"State needs more **detoxes**, intermediate and more sober homes; currently no detox or CSS in Lowell itself, closest treatment is in Tewksbury"*

*"Need ability to get people into **detox seven days a week**; continuity of care"*

*"Increase capacity in city to provide outreach and case management to **homeless** community in other ways, CO-OP has hands full with individuals they help and process"*

Not all services are accessible. Even if a client is ready to take a necessary step towards a more positive situation, roadblocks can deter them. In some cases, it can be the inability to place a call, secure housing or pro bono legal assistance.

Limited resources for clients hinder access to care:

*"Resources and finances are huge and there will always be a need for private **insurance** that has more resources like yoga, acupuncture etc.; this should be treatment that is available for all, not just private insurance."*

*"If they don't have a **phone** or charger, wifi, etc. unable to get help and we found them to be more vulnerable than any others during COVID"*

Clients, in interviews, also identified gaps in community services. Some said there needs to be more mental health resources. Two clients suggested that there needs to be more people doing outreach to those who need help.

*"They need **more people** out walking the streets like city officials, health officials, checking all these people's because I can guarantee you HIV and Hep C and all that stuff are running rampant in this neighborhood. That's not a good thing. You know because God forbid you got on the park and sit on a needle."*

The CO-OP echoed the need for increasing capacity for the CO-OP:

*"Need **weekend** [CO-OP] services"*

*"Want more **advertising** to community as a whole - what is CO-OP and all services, such as community education"*

Several methods to increase effective community response were suggested:

*"Having regular meetings; quarterly or 1/month between all the partners in the city to have like a **Roundtable discussion**; you know just so that we can all be working and more in greater sync with one another"*

*"Having somebody as advocate in the **emergency departments** would be immense because so often, we get somebody there and they may need better medical clearance before they go on to detox. Too often they go to the hospital to get clearance to go on to a detox that we've secured a bed and the hospital just lets them go back out onto the streets"*

*"Continue to build relationships with **churches**; a few, mostly churches that will be available and support people on a Saturday, almost impossible to find other than church service on a Sunday"*

On the **community level**, stigma can be the biggest hurdle for so many. Many of the CO-OP clients are faced with negative, judgmental, or discrediting attitudes even from others in their own community and service providers from which their clients are seeking help. Stigma can stop someone from getting a job or housing.

Client Familiar Faces Data Analysis. Several themes were identified when examining narratives in the Familiar Faces database. These include Conditions of Poverty (homelessness, theft), Mental Illness (suicidality, mental health condition, history of mental health treatment), Violence (interpersonal, domestic/household), and Substance Use (witness to substance use, overdose, family with substance use disorder). An aggregated analysis can point to some areas where increase supports and interventions could be useful across the community. While these themes or recommendations are not new in the OUD landscape, the analysis provided more concrete evidence. We are confident more can be discovered with further deeper analysis of these data.

Housing Insecurity
Sixteen individuals (76%) were identified as having some kind of housing insecurity. These individuals were described as being unhoused, living in tents, living in shelters, or living in hotels.

Theft
The vast majority of people (76%) in the sample were involved as perpetrators of theft. Overall, there were 62 records coded as theft where the subject was the perpetrator. Of the sixteen individuals coded, two individuals had 10 encounters as perpetrator and the other 14 ranged between one and seven encounters. There were 15 total encounters with survivors spread across eight individuals, with two individuals coded with four encounters each. There were twelve instances of bystanders to theft, with no individual having more than three instances.

Role	Number of individuals
Perpetrator	16
Victim	8
Bystander	5

Mental Illness
More than half of Familiar Faces clients (52%) were involved in at least one encounter where they exhibited signs of mental illness. There were 38 mental health-related LPD encounters coded as subjects, with two individuals having the majority of cases – one with 14 encounters and one with 11 encounters. The remaining nine individuals had between one and three mental health-related encounters apiece. Two individuals were involved in encounters as both subject and bystander.

Role	Number of individuals
Subject	11
Bystander	4

Interpersonal Violence
There were nine total individuals (43%) who had encounters coded as involving interpersonal violence. A nearly equal number of people experienced being perpetrators as being victims. Only two people had an encounter in each of the three categories, and those two people were also the two people with the most encounters as perpetrator (5 and 4 encounters). One other person was coded once as a perpetrator and once as a victim. Overall, there were 15 encounters with perpetrators, eight with victims and three with bystanders.

Role	Number of individuals
Perpetrator	6
Victim	7
Bystander	2

Domestic Violence
There were 20 incidents coded as domestic violence, with eight individuals involved in at least one incident. Seven incidents involved two Familiar Faces (these were incidents involving one of two couples who are both Familiar Faces), one as perpetrator and one as victim. Five of the eight individuals were identified as perpetrators and victims in separate incidents. The three who were not identified in both roles only had one incident each.

Of the 20 incidents coded for domestic violence, LPD officers informed victims of the process to acquire a restraining order (209a) or the perpetrator was in violation of a restraining order 12 times (60%). In one incident, a report of child abuse or neglect (51a) was filed.

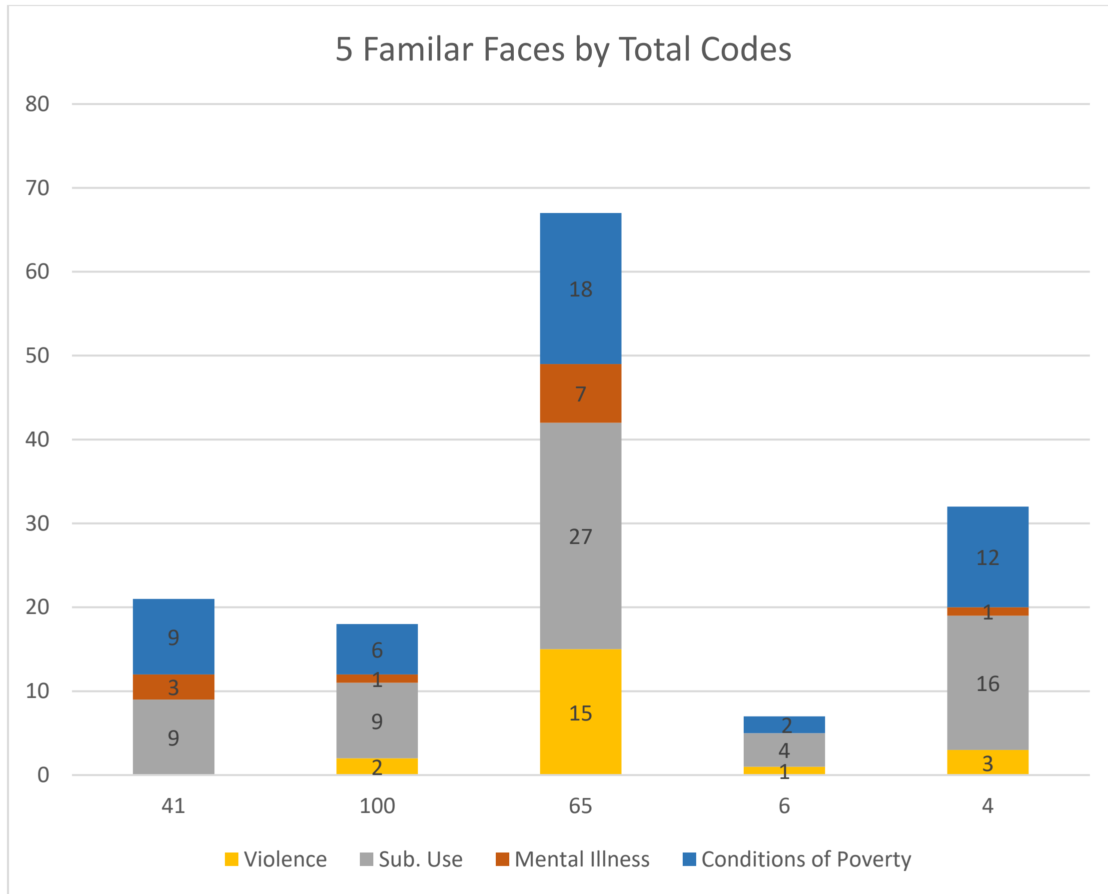
General Substance Abuse
Every individual in the sample had at least one encounter with the LPD in an incident coded as involving substance abuse. Five individuals only had one such encounter, while the highest number of encounters for an individual was 21. Five individuals had more than ten such encounters. The total number of individual encounters was 148 (some encounters involved more than one individual).

Overdose
Lowell Police responded to overdoses involving 13 of the 21 people (62%) in the sample. The number of overdoses suffered by individuals varied widely, with four of the 13 only having one overdose call, while one person had 13 and another 10. Overall, there were 59 total encounters where a member of the sample had overdosed.

In 13 of the 59 overdose encounters (22%), the police narrative indicates that a bystander administered Narcan to the person suffering the overdose *before first responders arrived*.

Witness to Overdose
About half of the sample (10 individuals - 48%) were involved in incidents where they witnessed an overdose. One person witnessed five overdoses and another person witnessed four, and the rest witnessed either one or two. Overall, there were 17 incidents involving a witnessed overdose.

As another way to illustrate the coding of individual familiar faces, the table below summarizes the number of times codes were assigned to police narratives for five randomly chosen familiar faces.



Without exception, the dominant two themes for these five familiar faces were substance use and conditions of poverty. Narratives coded as relating to substance use were the highest for all five as indicated by the grey bar, ranging from four to 27. Conditions of poverty (e.g., theft and homeless) were identified in all five familiar faces and were coded from 2 to 18 times. The violence (yellow) and mental illness (orange) codes were found in four out of the five familiar faces with 15 encounters coded for violence and seven for mental illness for familiar face #65.

Indications

Because the CO-OP is focused on outreach into the community about opioid use, it is not surprising that encounters coded as ***substance use*** were most common. More funding to increase the number of and access to treatment and recovery programs seems necessary. Also, members of the CO-OP have expressed the need for more outreach, perhaps by adding more people to the team, and/or working different shifts into the evening and on weekends. Funding to increase the size of the CO-OP or increase hours worked, and to provide additional resources (e.g., transportation, more treatment options) is important.

Given the high percent of familiar faces who are experiencing some kind of ***housing insecurity***, a supported approach such as the Housing First model could be investigated for its fit within Lowell. A study published by HUD in 2007 examined the applicability of this model for people with serious mental illness and co-occurring substance use related disorders. The researchers note that Housing First is not a single model but a set of features that communities can adapt to

fit their needs. While positive clinical changes were limited, the three programs they examined did contribute to housing stability and some other positive outcomes. This model has seen some success in Boston this year.

The frequency of encounters where ***mental illness*** was coded, provides further evidence that the LPD's new-in-2021 co-responder program is an important tool at their disposal. Trained clinicians are invited to accompany police to calls where behavioral health issues may be present. Clinicians are able to stabilize a situation and divert people from arrest or the criminal justice system.

The rate of encounters that presented with ***interpersonal or domestic/household violence*** points towards other recommendations. Certainly, there is a need for more accessible and tailored positive conflict resolution programs starting at the prevention stage, such as in schools. Being the victim of or witnessing violence, whether it be a physical fight, abuse, poverty, or an overdose, can negatively affect physical and mental health. *Trauma informed* approaches in programming, schools, and policing can address more effectively the "intersections of trauma with culture, history, race, gender, location, and language, acknowledge the compounding impact of structural inequity, and are responsive to the unique needs of diverse communities" (https://www.nctsn.org/trauma-informed-care/creating-trauma-informed-systems). Increased opportunities and funding for training and strategic planning to promulgate trauma informed practices and systems is indicated.

However, this does not erase some structural reasons why violence occurs and persists. Structural violence occurs when power and resource differentials exist, putting certain populations at risk for increased morbidity and mortality (http://www.cherchicago.org/about/structuralviolence/). Attending to the root causes of violence is imperative.

Finally, humanizing those with opioid use disorder can dismantle negative stereotypes and change the culture so that the most vulnerable are treated properly and effectively. One CO-OP team member, as part of her master's level Community Social Psych practicum, is developing a photovoice/storytelling exhibit that will show their lives are not defined solely by their disorder. Shedding light on the complexity of people's lives can change public perception and reduce stigma.

Next Steps

Because of time constraints due to complications obtaining all the encounter data, the research team will further the analysis of the familiar faces data post the grant period. This includes examining each familiar face data set individually rather than in the aggregate to identify nuances to each life course that could also indicate specific community services that need bolstering and possible interventions at crucial junctures. Additionally, developing archetypes that identify some universal aspects in the lives of the familiar faces could be useful in assisting service providers in deploying strength-based approaches based on certain archetypes.

Summary of Results

Partnerships have been strengthened within and between the CO-OP team's organizations. The CO-OP has also experienced success in building rapport and trusting relationships within Lowell's OUD community. The keys to this success were identified as having a physical presence in the community; assisting clients with at-the-moment needs, such as getting a new ID

or socks; and establishing judgment-free communications with clients. The CO-OP increased access to information, resources and/or treatment for those affected by the opioid epidemic. The CO-OP has worked with organizations such as shelters, hospitals and detox centers in order to meet client needs and to provide the CO-OP with better information about the range of clients' service interactions. They have been effective in getting the word out about the team what they can do.

Clients credited the CO-OP with helping them enter detox, find jobs, facilitate connections with other services (e.g., Life Connection Center), secure beds in a shelter or gain access to other housing, receive official identification cards, and obtain needed clothing. CO-OP clients exhibited agency as they strive to take control of their lives.

The COVID-19 pandemic and the state and institutional responses greatly impacted the work of the CO-OP team beginning in mid-March 2020. At this time, with the single exception of the LFD, each organization comprising the CO-OP mandated work-at-home policies or reassigned CO-OP team members to other tasks related to the pandemic. These decisions were made independently by each organization. The result drastically reduced the CO-OP's presence at a time when the community was experiencing great stress. The unprecedented number of client interactions that occurred in the time immediately following the CO-OP team members' return to the field illustrated just how badly their presence was missed.

When examining encounters with LPD, service providers, and the CO-OP, the increase in CO-OP encounters coincides with a decrease in law enforcement encounters. Additionally, there was an overall decline in crimes typically related to drug use.

The CO-OP solidified an understanding of challenges and gaps within the OUD landscape in Lowell. Certain themes found across the lives of clients indicate a need for: more funding to increase the number of and access to treatment and recovery programs; an increase in and access to supportive housing; a continuation and broadening of the LPD's clinical co-responder approach; more accessible and tailored positive conflict resolution programs starting at the prevention stage; trauma informed approaches in programming, schools, and policing; and attention to dismantling root causes of violence and stigma.

Lastly, after a peak in 2016 (79), fatal overdoses declined by 36.7% (50) in 2020. Additionally, after a peak in 2018 (811), non-fatal overdoses decreased by 39.7% (489) in 2020.

Important Lessons Learned

The consensus among those involved with the CO-OP during the course of this project is that the most significant lesson learned is the importance of developing relationships within the OUD community. Everything else that the CO-OP does is made possible by the establishment of trusting relationships with the individuals they serve. The process of building these relationships cannot be reduced to a simple formula, but there are components that seem critical:

- Having a physical presence in the client community,
- Establishing a trusting and caring rapport with individuals,
- Understanding that some people are not ready to begin recovery and that is okay; it is important to meet clients where they are at that time,

- Acknowledging that recovery is not a linear process and it is not a defeat when individuals experience setbacks, and
- Being willing and able to help with basic day-to-day needs even when the client is not ready to pursue recovery.

In addition to this critical insight, the CO-OP and supervisors were able to identify a number of factors that were important in creating and maintaining an effective outreach program.

What is needed to make a partnership work

High-quality and diverse outreach team membership: It is critical to create an outreach team that is diverse in sector (law enforcement, public health, recovery, etc.) and skill set. The issues within the client community call for a variety of areas of expertise and methods of response, which is best served by a multidisciplinary approach. This diversity also facilitates stronger partnerships among the participating organizations as they address different aspects of the opioid epidemic.

Relationships, networking, and resource-sharing: The diversity of the CO-OP allows for the unique sharing of both resources (e.g., transportation, networking with facilities, etc.) and experience (e.g., professional development, trainings, philosophical approaches to addiction management, etc.). An important part of this process turned out to be determining how HIPAA requirements did or did not restrict the way different organizations discussed clients within the CO-OP setting.

Roles, responsibilities, and chain of command: While the multidisciplinary nature of the CO-OP is critical to its effectiveness, bringing together members of organizations with very different missions and cultures provides its own challenges. It is important to clearly define roles and responsibilities for each team member, including limits on the scope of care, as well as mapping out a chain of command and identifying appropriate leadership, both within the team and how the team relates to their home organization. Carefully considered MOU's are recommended to officially define the roles and prevent issues.

Clear objectives and approaches: Strategies, deliverables, and objectives were constantly evolving as the CO-OP gained more experience and the nature of the crisis in Lowell continued to change. It is important to leverage early successes to build consensus on changes to the team's approach in order to best serve the community.

Data record keeping: Data collection is an important tool to understand the client population, detect trends and identify gaps in treatment, measure success, and document the course of interactions with individual clients. The CO-OP found that it took time to create a system that met the data needs of the team and supervisors without overly burdening team members with data gathering. It is important to receive constant feedback from both data gatherers and data users to refine the system.

Create crisis plans ahead of time. The COVID pandemic made clear the need to use a time of stability to create contingency plans that allow outreach to continue while maintaining health and safety for team members and clients. Create a set of standard operating procedures for working

in the field under different circumstances (such as the pandemic). Set in place strong communication channels that will not break if a link is missing (for instance, the CO-OP had trouble obtaining police overdose data when the police CO-OP member was assigned to other duties during the pandemic).

New partnerships. Develop new or stronger relationship with community entities that can further the work of the outreach (e.g., churches, hospitals, shelters).

Possible different team configurations. The number of team members is a result of the number of collaborating organizations and funding. An increase in the number of team members would potentially allow for either two teams that would work different shifts, allowing for outreach to populations that are not necessarily on the streets during current working hours or two groups of a few members each to cover more territory.

Continuous reflection/analysis of processes. Step back and analyze process to ensure the functioning of the team works, and that the host organizations are aligned in terms of goals, expectations, and resource support.

Partner and target population needs. Compassion fatigue could be alleviated through structured support beyond self-care (e.g., an EAP) and engaging in primary prevention activities such as presentations to youth and school groups. Unexpected client challenges (e.g., fear of police, presence of young child on site) may require coordinated adjustment of approaches to service delivery.

Secure adequate transportation. Vehicle availability for the team was a long-running concern. A vehicle was necessary to transport team members efficiently around the city to minimize time in transit. A vehicle also allowed for the occasional transport of a client to a service they might require.

Sustainability and Conclusion

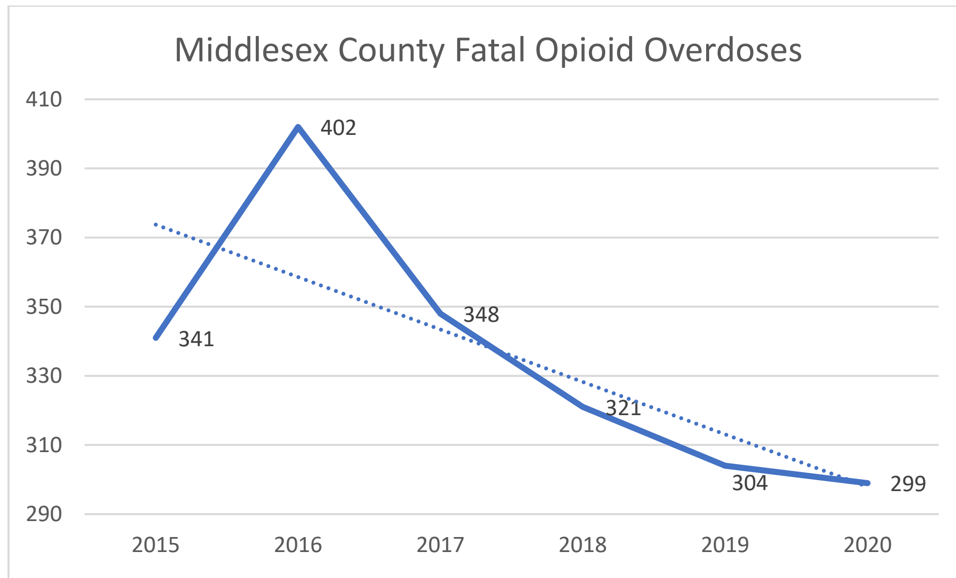
The Lowell Community Opioid Outreach Program (CO-OP), a multidisciplinary post-overdose outreach team, has shown to positively impact the community of Lowell, Massachusetts. In order for the CO-OP to meet the emerging needs of the opioid use disorder population in the city, the CO-OP has recognized that it is necessary to evolve alongside the opioid epidemic.

In 2015, the Lowell Police Department (LPD) created the CO-OP. At its conception, the CO-OP included two team members that committed approximately 50% of their time to CO-OP efforts: a LPD officer and an outreach worker from Lowell House Addiction Treatment and Recovery (Lowell House). However, the City of Lowell leadership and LPD quickly realized that there was a great need for additional resources to expand the CO-OP. The LPD applied for and received 2016 Smart Policing Initiative (SPI) grant funding, which allowed the LPD to increase the capacity of the city as a whole to fight the opioid epidemic. Grant funding allowed for the LPD officer and Lowell House outreach worker to commit full time hours to the CO-OP. Through City funds, in 2016 the Lowell Fire Department (LFD) assigned a full-time a firefighter to CO-OP. Continuing to see a need for more resources in addition to existing grant funding, in 2017 Trinity Emergency Management Services (Trinity EMS) assigned two part-time EMTs to the CO-OP. As written into the grant, the LPD included the Lowell Health Department (LHD) in CO-OP efforts; however, the LHD did not have the capacity to assign personnel to the CO-OP until 2017 when they then created and began the hiring process for fa full-time Clinical Recovery Specialist position. The LHD also hired a Substance Abuse Coordinator through another funding source; the Substance Abuse Coordinator was tasked with overseeing the CO-OP.

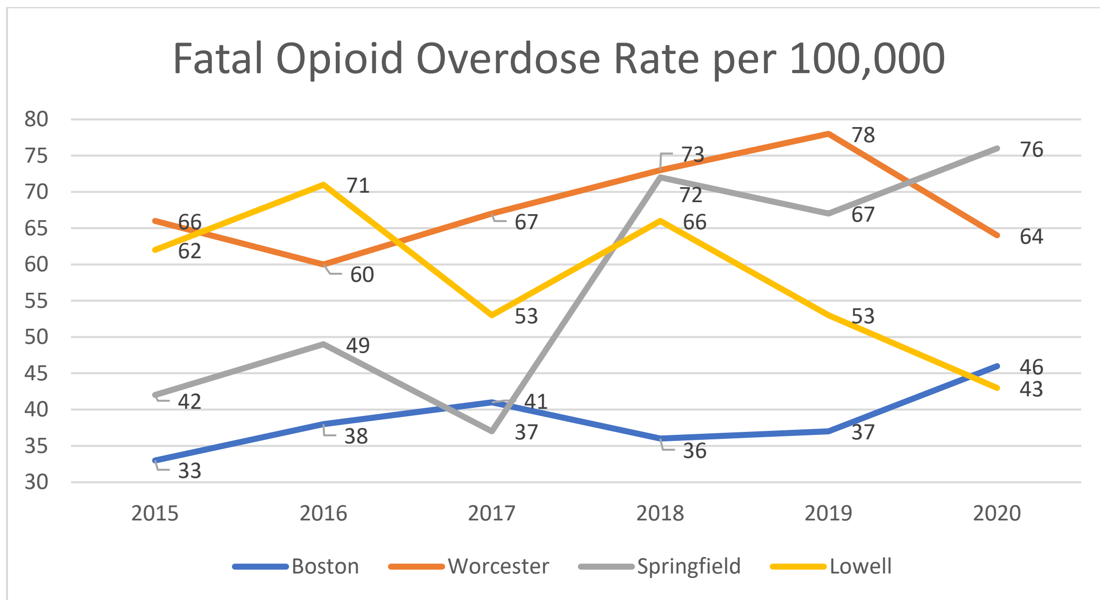
The 2016 SPI grant funding had a ripple effect on the city of Lowell’s capacity to fight the evolving opioid epidemic. Within the first year of the funding, the LPD initiated the transfer of the oversight of the CO-OP to the LHD as both agencies viewed the opioid epidemic as a public health crisis; LFD, Lowell House, and Trinity EMS also agreed with this decision. At this time, the CO-OP Supervisory Team was created. Additionally, all agreed that as the CO-OP matured it needed full-time, in-office support, which the Substance Abuse Coordinator, who was located outside of the CO-OP office and had additional management responsibilities, could not offer. The Lowell City Council approved the creation and funding of a full-time CO-OP Supervisor position to support CO-OP staff and oversee the day-to-day operations of the team. The CO-OP Supervisor began in 2018 providing daily support and facilitating structural changes and decisions made by the Supervisory Team. Additionally, in 2018, the Lowell City Council approved the Syringe Collection Program Coordinator position in the City Budget beginning in 2019. This position is responsible for collecting and disposing of syringes found in the community in a safe and appropriate manner. The Syringe Collection Program Coordinator is also responsible for community education regarding safe syringe access and disposal, and works very closely with the CO-OP. City leadership and the Lowell City Council recognize that resources are necessary to address the opioid epidemic, and advocate to provide services that reflect the current needs of the community.

Lowell, Massachusetts is the second largest municipality of the 54 the cities and towns located within Middlesex County; Lowell represents nearly 7% of the population. However, in 2016, Lowell represented 19.6% of all fatal opioid-related overdoses in the county. That number

decreased to 16.7% in 2020. Middlesex County overdose fatalities decreased 12.3% from 2015 to 2020; however, during that same time period, Lowell's decreased 27.5%. Both Middlesex County and the Lowell opioid-related overdose fatalities peaked in 2016 with 402 in the County and 79 in the city. Reviewing data from their peak in 2016 to 2020, the County has decreased by 25.6% and the city has decreased by 36.7%.

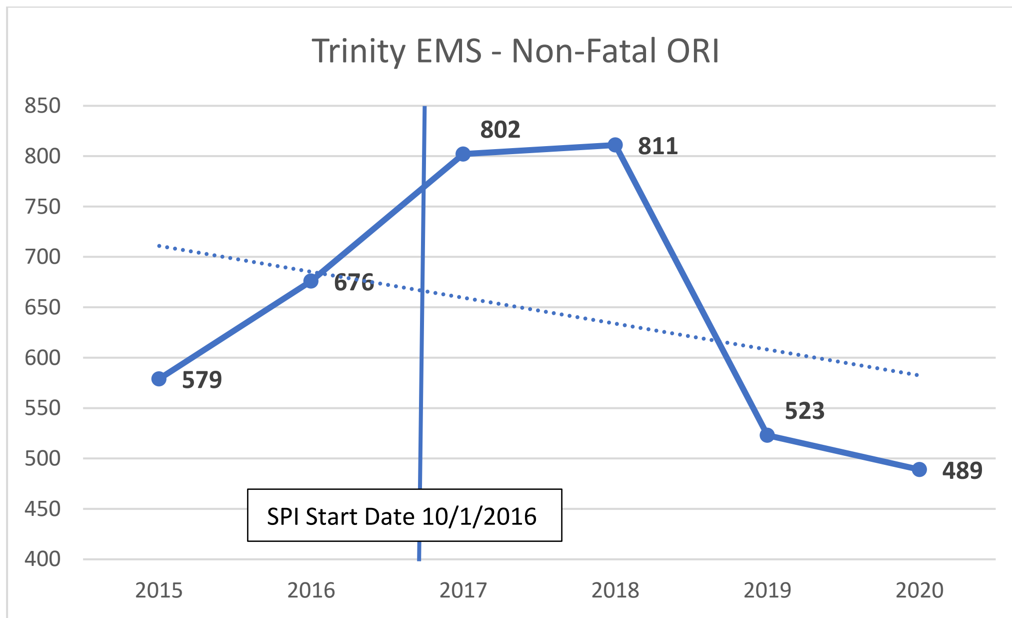


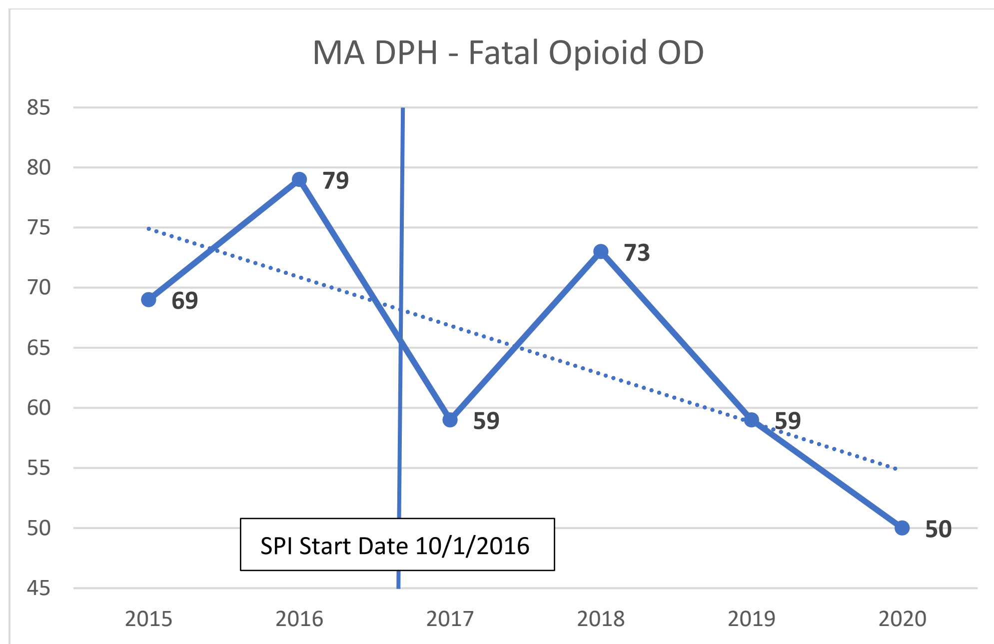
In reviewing the fatal opioid-related overdose rate in four municipalities (2015-2020) in Massachusetts with comparable diversity and socioeconomic characteristics, Lowell's rate per 100,000 has decreased significantly (-31%) compared to the other municipalities.



Through the coordinated efforts to combat the opioid epidemic in Lowell, there have been significant decreases in both fatal and non-fatal opioid-related overdoses. Since 2015, fatal overdoses decreased by 27.5% and non-fatal overdoses decreased by 15.5%. However, fatal

overdoses peaked in 2016 (79) and there were 50 fatal overdoses in 2020, which represents a 36.7% decrease. Additionally, non-fatal overdoses peaked in 2018 (811) and there were 489 non-fatal overdoses in 2020, which represents a 39.7% decrease.





The LPD has a long-standing commitment to community policing and serving the Lowell community. The LPD understands that there are many issues facing Lowell that cannot be fought by the police on their own. Police may be the first to be called; however, an arrest may not be the solution to the issue at hand. The LPD is committed to combatting the opioid epidemic through a variety of resources. The LPD has demonstrated this with its newly created co-responder program in which mental health clinicians respond to calls with LPD officers. Co-occurring

mental health and substance use disorders are more common than once thought, and instituting trainings and practices to best engage with this high-risk community in Lowell is essential. In September of 2019, the LPD was awarded BJA's Comprehensive Opioid, Stimulant, and Substance Abuse Site-based Program (COSSAP) grant. The COSSAP grant was written with the goals of expansion and sustainability of the CO-OP project. COSSAP grant funding has allowed for the creation of a Youth Outreach Specialist position that is embedded within the CO-OP as a member of the LHD.

The Smart Policing Initiative Community Opioid Outreach Program has been instrumental in combating the opioid crisis in Lowell. The impact of the program is measurable and its significance to Lowell is worthy of recognition. With the CO-OP team as a tool, Lowell has profoundly influenced the trajectory of the opioid crisis in the lives of individuals with substance abuse disorder and in the community. While there is still work to be done, Lowell would not be where it is today without this funding. Institutionalizing key positions and procedures by City leadership and service providers indicate a sustained commitment to seeing all people in the Lowell community as humans, however struggling, who deserve a friendly face and helpful hand along the path to a healthy and fulfilling life they want.

Lowell CO-OP Success Stories

In November 2019, the CO-OP was invited to the Pyne Arts elementary school to give a presentation about the dangers of drugs and alcohol to 8th graders. The presentation was mostly focused on prevention but it quickly changed when students started sharing personal stories of family members suffering from substance use disorder. Many students stayed after the presentation to speak privately with the CO-OP. After the presentation, the teacher told the team that he knew this would be a good thing for his students but he never imagined how engaged they would be and how clearly they needed to have this conversation. Word of this successful presentation spread and the CO-OP conducted two more presentations at the Robinson Middle School.

In March 2020, the Clinical Recovery Specialist began working with a client in a residential SUD program. He worked with the client through the process of reunifying with her children, submitting Residential Assistance for Families in Transition and Section 8 applications, and finally, successfully securing an apartment in February 2021. Through that time, they continued to work with her 12-step program and secured her a sponsor. She is now in the maintenance phase of her sobriety.

In December 2020, the Clinical Recovery Specialist began working with a 50-year-old male who was living at a sober house in Lowell. The client had fallen behind in rent and asked for help finding rental assistance. The CRS connected the client to Community Teamwork Inc., where he received rental assistance. The client then relapsed, and the CRS was able to place him in detox. The client has continued to stay in touch with the CRS who is now teaching him recovery tools. The client currently lives independently and works as a recovery specialist in another community.

The CO-OP team presented at the HART House, which is a home for women living with addiction and their children. After the CO-OP's presentation, staff approached with a young mother to discuss her son who was having behavioral issues in the residence. The CO-OP then spent the rest of the afternoon engaging with the boy by playing sports and activities. They followed-up by using their connections to get the boy and two other children from HART House enrolled in the Middlesex Sheriff's Office's Youth Summer Safety Academy, a week-long summer camp that exposes children aged 8-12 to role models in public safety.

In January 2021, the Clinical Recovery Specialist (CRS) established a relationship with a young woman struggling with substance abuse issues and a physical disability. The CRS collaborated with Lowell Community Health Center to secure specialized care for her disability and with the Lowell Housing Authority to expedite the client's housing due to her disability. The client moved into housing September 2021. Following her securing housing, the client began work at an agency specializing in teaching individuals with a disability to be independent. The CRS continues to work with this client on recovery and relapse prevention tools.

In March of 2021, the Youth Outreach Specialist established a relationship with a young client new to Lowell who was residing at the Lowell Transitional Living Center. The YOS referred this

young woman to Community Teamwork Inc. Youth Services, where she received ongoing housing coordination, including grants specifically to be used for obtaining a market rate unit in the area. Working with the CO-OP, this client obtained identification for the first time, began treatment processes to address several outstanding medical conditions, obtained new employment, and received financial assistance for legal services. The YOS meets with this client and her housing case managers regularly to provide housing and healthcare coordination, help facilitate communication between the client and her various service providers and increase the client's coping skills.

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Appendices

A. Lowell CO-OP Brochure
B. CO-OP Data
C. CO-OP Agency Partnership MOU (non-legal) approved by Supervisory Team in June 2021
D. Lowell's SPI Community Opioid Outreach Program (CO-OP) Project Plan Details
E. Narcan Training flyer
F. COVID-19 flyers 2020 and 2021
G. Lowell CO-OP 2020 Calendar Year Summary
H. Quarterly Report examples
I. 2018, 2019, 2021 Surge Press Releases
J. Cocaine/Fentanyl Warning Flyer
K. 2018 Process Evaluation Report
L. 2019 Process Evaluation Report
M. 2020 Process Evaluation Report
N. 2021 Process Evaluation Report
O. Partners in the community