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Prevention of Opioid Use and Disorder Among Youth Involved in the Legal System: Innovation and Implementation of Four Studies Funded by the NIDA HEAL Initiative

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Abstract

Youth involved in the legal system (YILS) experience rates of opioid and substance use disorders (OUD/SUDs) and overdose that is well above those in the general population. Despite the dire need, and the existing programs that focus on treatment of these problems in YILS, research on opioid initiation, and OUD *prevention*, including feasibility and sustainability, are severely limited. We present four studies testing interventions that, while not necessarily novel as SUD *treatments*, test novel structural and interpersonal strategies to *prevent* opioid initiation/OUD precursors: (1) ADAPT (Clinical Trial No. [NCT04499079](https://clinicaltrials.gov/ct2/show/study/NCT04499079)) provides real-time feedback using community-based treatment information system data to create a more effective mental health and SUD treatment

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Ethics Approval All procedures involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The ADAPT study was approved by Indiana University Purdue University Indianapolis Institutional Review Board (1910282231); the HOME study was approved by The Ohio State Behavioral and Social Sciences Institutional Review Board (2019B0287); the LeSA study was approved by Texas Christian University Institutional Review Board (1920–219); the POST study was approved by the Washington State Institutional Review Board (2019–131-DCYF).

Informed Consent Informed consent was obtained from all participants included in the studies. For youth under 18, parental consent was obtained unless a waiver was granted by the relevant institutional review board.

Conflict of Interest The authors declare no competing interests.

cascade to prevent opioid use; (2) HOME (Clinical Trial No. [NCT04135703](#)) provides youth experiencing homelessness, including YILS, with direct access to shelter in independent living without prerequisites as an opioid initiation prevention strategy; (3) LeSA (Clinical Trial No. [NCT04678960](#)) uses the Trust-Based Relational Intervention[®] to equip YILS and their caregivers with self-regulatory and communication skills during the transition from secure confinement to reduce opioid initiation/re-initiation; and (4) POST (Clinical Trial No. [NCT04901312](#)) tests two interventions integrating interpersonal/drinking and drug refusal skills, case management, and goal setting among YILS in transitioning out of secure detention as opioid initiation prevention strategies. We discuss early implementation barriers and facilitators, including complexities of prevention research with YILS and adaptations due to COVID-19. We conclude by describing anticipated end products, including implementation of effective prevention interventions and integration of data from multiple projects to address larger, multi-site research questions.

Keywords

Prevention; Juvenile justice; Juvenile legal system; Opioid use; Substance use; Adverse childhood experiences; Implementation science; Hybrid trials; RCT

Introduction

Substance and Opioid Use Disorders Among Youth Involved in the Legal System

Youth involved in legal systems (YILS) are defined as those who have been arrested, adjudicated, convicted, or detained. Despite overall declines in incarceration rates, numbers of YILS remain high. As of 2017 an estimated 43,000 youth were in residential legal placements (Hockenberry & Sladky, 2020).

YILS across the spectrum are more likely to engage in substance misuse and have substance use disorders (SUDs) than the general population. Most YILS engage in significant substance use; for example, up to 50% of diverted pre-adjudicated YILS report frequent cannabis use (Tolou-Shams et al., 2019). Although published SUD prevalence estimates vary by location, level of criminal legal system involvement (arrest versus adjudication versus placement in detention facility), and the strategies used to assess substance use (Aalsma et al., 2019; Grisso, 2004; Mulvey et al., 2010; SAMHDA, 2015; Wasserman et al., 2010), it is estimated that at least one-third to one-half of post-adjudicated YILS meet criteria for a SUD (Prinz & Kerns, 2003; Tolou-Shams et al., 2019; Wasserman et al., 2010).

Of particular concern are opioid misuse, disorders, and mortality. The prevalence of recent (past year) opioid misuse may be as high as 20% for youth with a history of arrest or incarceration (Sung et al., 2005). Even more alarming, persons who have been released from incarceration in the past year are more than 10 times as likely to have a fatal opioid overdose compared with persons without recent incarceration history (Ranapurwala et al., 2022). As synthetic opioids are replacing prescription opioids and heroin (Reuter et al., 2021), the risks associated with opioid use will only continue to increase especially for vulnerable populations like YILS.

Existing Research on Substance Treatment and Prevention Among YILS

Although SUD and OUD treatment research specifically focusing on YILS is lacking when compared with research conducted in adults involved in the legal system, there are approaches that have been documented to be effective among YILS. Treatment approaches for YILS with SUDs including OUD in service and research arenas with some degree of evidence include drug courts, diversionary sentencing, residential treatment, 12-step programs, contingency management, and skill-based behavioral treatment programs (White et al., 2019; Young et al., 2007). While there is this evidence for treatment, research on *prevention* of opioid use initiation/OUD among YILS is almost completely lacking. This research is critical given the high risk of overdose once opioids are initiated, particularly in the current climate where synthetic, counterfeit opioids have almost completely replaced prescription opioids and heroin (Mattson et al., 2021).

Precursors to Opioid Use/OUD in YILS

To effectively prevent opioid initiation and OUD in YILS, one needs to identify and focus on precursors to opioid use. Although it is beyond the scope of this paper to present an exhaustive review of antecedent factors to opioid use/OUD in YILS, we present a summary of the factors that are relevant to four prevention studies that focus on several specific precursors to opioid initiation as well as OUD.

Research on the YILS suggests that this disproportionality of substance use rates stem from individual, familial, and structural factors. This includes a high prevalence of adverse childhood experiences (ACES), a set of risk factors that include having a household member in the legal system, as well as exposure to caregiver substance use, that contribute to SUD/OUD risk (Folk et al., 2021a, b). First-time YILS report an average of three ACES prior to their intersection with the criminal legal system; they also report increased rates of substance use and substance use consequences up to 1 year after initial criminal legal system contact (Folk et al., 2021b). Studies report higher rates of abuse and violence exposure in childhood among YILS, with childhood experience of sexual abuse being a stronger antecedent for female than for male YILS (Baglivio et al., 2014). Those having experienced sexual and emotional abuse in childhood are more likely to be diagnosed with an opioid use disorder (Santo et al., 2022).

ACES can influence OUD risk in several ways. They set the stage for both internalizing and externalizing mental health disorders and decreased ability to regulation responses to complex emotions abilities that are risk factors for opioid use and OUD (Rogers et al., 2022). In addition, ACES increase the risk of mental health and self-regulation problems (Graf et al., 2021) which in turn can lead to legal system involvement in ways such as aggression and aggressive behavior (Steiner et al., 2011). ACES also increase the risk of non-opioid SUDs, which are demonstrated risk factors for subsequent opioid use initiation and OUD (Rhee & Rosenheck, 2021; Rogers et al., 2022). Further, once a youth is involved in the legal system, the isolation and separation from community can further contribute to increased risks of opioid use and OUD. For example, following detainment in post-adjudication residential juvenile legal system facilities, YILS face the difficult task of transitioning from a highly structured environment back into their homes and communities.

Furthermore, they experience disruption of educational progress because of time away from school, as well as reduced positive contact with family and social connections (Kubek et al., 2020). This is in part due to placement in confinement and stigma related to involvement in the criminal legal system (Mahoney, 1974).

The weakening of family and community ties among YILS also increases the risk of homelessness (Moschion & Johnson, 2019), which in turn increases risk of opioid use and OUD (McLaughlin et al., 2021). It is estimated that more than half of all youth experiencing homelessness report previous involvement with the criminal legal system (Metraux & Culhane, 2016; Moschion & Johnson, 2019; Narendorf et al., 2020; Omura et al., 2014). Almost one-quarter of persons living in a shelter report that exiting prison or jail was a direct cause of their homelessness (Metraux & Culhane, 2016). Homelessness is a traumatizing and impairing event, with high rates of violence, stress, and isolation that contributes to further involvement in the criminal legal system (Britton & Pilnik, 2018; Narendorf et al., 2020). Traditional housing services for youth experiencing homelessness often exclude YILS, including those with felony offenses, outstanding warrants, or a history of minor violence (Sample & Ferguson, 2019). As a result, communities relying on housing agencies for reducing homelessness may struggle to help YILS. In addition, traditional housing services often require graduated access to shelters upon attainment of sobriety or acceptance of a particular volume of services. Thus, YILS with non-opioid SUDs may have particular difficulty obtaining stable housing, which in turn increases risk of OUD.

Purpose and Scope of Current Paper

Given the complexity of the needs of the YILS and the historical focus on treatment rather than prevention, few opioid use initiation and OUD prevention models exist. Interventions that focus on addressing the previously described precursors provide promise as prevention strategies for opioid use in YILS. These include structural interventions that target improvement of mental health and non-opioid SUD treatment systems to increase access and engagement, and individual-level interventions, such as those that provide housing, focus on strengthening parental and familial relationships, and/or that increase self-efficacy to abstain from substances promise for opioid prevention.

The purpose of this paper is to describe four novel approaches to preventing opioid use initiation/OUD among YILS that focus on the above precursors. These studies are currently being funded by two National Institute on Drug Abuse Helping End Addiction Long-Term (NIDA HEAL) initiatives. In the following sections, we describe the two funding initiatives, then describe each preventive intervention including objectives, study design, sample, hypotheses, primary outcomes, progress to date, and highlights for each project. We present additional detail on study designs in Table 1. We conclude by describing novel facets and expected outcomes of the Helping End Addiction Long-Term (HEAL) Prevention Cooperative (HEAL Prevention Cooperative (HPC)) and Justice Community Opioid Innovation Network (JCOIN) initiatives and YILS opioid prevention projects.

We do not present outcomes data, nor do we assert these are proven approaches to opioid prevention. Rather, this paper is intended to provide a brief overview of each project with the goal of highlighting unique/promising opioid prevention strategies for YILS, with the

goal of generating discussion/additional novel opioid prevention approaches. Thus, detailed descriptions of pilot and main trial findings for the individual studies are outside the scope of this paper.

HEAL Prevention Cooperative and Justice Community Opioid Innovation Network Initiatives in YILS

The prevalence of current and past adversities and documented associations with substance use in YILS, combined with the lack of structural support for prevention rather than treatment work, suggests a critical need for empirically supported preventive interventions at multiple levels (i.e., individual, family, broader socioecological levels) and across all possible legal system intercepts (Folk et al., 2021a). The National Institute on Drug Abuse (NIDA), through its Helping End Addiction Long-Term (HEAL) Prevention Cooperative (HEAL Prevention Cooperative (HPC)) and Justice Community Opioid Innovation Network (JCOIN) initiatives, is committed to addressing prevention of opioid use among YILS and has funded an initial set of prevention intervention studies. As stated previously, each study presented here is designed to use different strategies to address opioid use and OUD prevention at different points in both the criminal legal system and OUD prevention continuums. The first study is part of the JCOIN initiative, a cooperative that includes 11 research hubs focused on addressing the opioid crisis among populations involved in the legal system (Ducharme et al., 2021). The other three studies are part of the HPC, a set of 10 research projects supported by a coordinating center all focused on prevention of opioid misuse among youth ages 15 to 30 years old (Ridenour et al., 2022).

Alliances to Disseminate Addiction Prevention and Treatment

Intervention Description and Study Objectives—Alliances to Disseminate Addiction Prevention and Treatment (ADAPT) integrates criminal legal system and community-based treatment information system data to create an SUD treatment cascade informed by the Legal System Behavioral Health Services Cascade (“Cascade”) (Belenko et al., 2017); the Cascade is a sequential stage model useful in assessing SUD treatment needs, engagement, and completion with the goal of informing local improvement efforts. Thus, it is both an opioid treatment *and* prevention study. ADAPT specifically utilizes a learning health system (LHS) approach, in which internal data and experience are systematically integrated with external evidence, and that knowledge is put into practice (AHRQ, 2019, May).

This approach is applied in each participating community through several components. Alliance building initially occurs between juvenile court and community mental health centers to identify SUD treatment cascade gaps and implement evidence-based practices to address them. Champions from each participating juvenile court and community mental health center agency are provided training to allow them to review and interpret linked juvenile legal system and treatment data to identify gaps in the local Cascade. These same champions then leverage rapid Plan-Do-Study-Act cycles, a quality improvement implementation approach tested in community substance use treatment settings (Chinman et al., 2012), in which ongoing training is adapted to identify, implement, test, and decide on local solutions to gaps. The objective of ADAPT is to implement and evaluate a system-

level intervention with the goal of increasing access to and utilization of evidence-based, non-opioid SUD and OUD treatment services for YILS.

Design and Sample

ADAPT is a Hybrid Type 2 Implementation-Effectiveness trial using a cluster-randomized stepped wedge design to study a system-level intervention (Aalsma et al., 2021). Hybrid implementation effectiveness trials are beneficial as they allow for testing both the effectiveness of an intervention while collecting data on implementation that can facilitate more rapid dissemination (Curran et al., 2012). Data are being collected and used to drive treatment cascade adaptations as well as assess outcomes at three different structural levels: (1) YILS administrative criminal legal system and health data, (2) YILS and parent/guardian dyads, and (3) data from juvenile court and community mental health center system personnel (i.e., administrators and staff). YILS in the record sample are identified through electronic juvenile legal system records obtained from a bulk data request. Juvenile court and community mental health center system personnel are identified through publicly available staff rosters, organization charts, and/or agency lists of contact information.

Main Hypotheses

1. YILS in communities with an LHS will see increased SUD/ODU treatment need identification, referral to services, initiation of services, and engagement in services.
2. YILS in communities with an LHS will see reduced criminal recidivism.
3. YILS in communities with an LHS will have reduced opioid-related emergency department (ED) utilization and other negative opioid-related outcomes; and

Key Outcomes

The primary behavioral outcome of ADAPT is the number of persons screened, assessed, referred, initiated, and engaged in care. The primary implementation outcome of ADAPT is organizational readiness to implement new innovations and organizational implementation climate, including support for evidence-based practices, leader support effectiveness of interagency collaboration/alliance. Other key outcomes include YILS recidivism, overdose and other opioid-related outcomes identifiable in administrative records, and ED utilization.

Progress to Date

Three cohorts have been trained and have provided the study team with local SUD treatment Cascade data. Key successes of ADAPT include the following:

- Eight juvenile court and community mental health center champions have attended training and have begun regular meetings with one another.
- Thirty-four staff have completed training in either an intensive youth-centered prevention intervention informed by motivational enhancement theory/cognitive behavioral therapy or a brief intervention for preventing mild to moderate SUD in youth, interventions chosen based on the above approach.

- An extensive data visualization workbook has been developed using local data, and site champions have received access to a secure version allowing online interaction with the data.

Key challenges for ADAPT so far include frequent turnover of both frontline staff and site champions in participating counties, as well as delays caused by the COVID-19 pandemic. As a result, ADAPT has engaged with leadership in both the juvenile court and community mental health system on a more regular basis including keeping them abreast of project updates and having an introductory face-to-face meeting when new staff come on board.

Highlights

- ADAPT seeks to use structural approach to preventing opioid use and OUD among YILS via the enhancement of substance use treatment and legal system partnership and the use of a data quality improvement approach to address deficits in the local SUD/OUD treatment cascades.
- Barriers to intervention delivery thus far have been tied to staff turnover and loss of site champions.
- ADAPT will result in integrated services that are traditionally siloed for YILS and facilitate inter-agency collaboration to improve health outcomes.

Housing, Opportunities, Motivation, and Engagement

Intervention Description and Study Objectives

The objective of Housing, Opportunities, Motivation, and Engagement (HOME) is to determine whether a supportive housing intervention can prevent opioid initiation and OUD in youth experiencing homelessness. The HOME study builds on the “Housing First” principle that asserts that shelter is a right that should not be contingent upon sobriety, negative history, or criminal legal system involvement, or participating in specific services. It is a model of supportive housing that provides persons experiencing homelessness with direct access to shelter in independent living, without prerequisites. Although extensive data support Housing First for older adults, almost no data exist supporting its use among youth experiencing homelessness. Those receiving the intervention are provided with rental and utilities support in the form of vouchers, as well as preventive services including motivational interviewing and HIV education. In addition, advocates are trained to engage and support youth with a strength-based outreach and advocacy approach. The objective of HOME is to determine if the intervention reduces OUD in youth experiencing homelessness.

Design and Sample

HOME is a two-arm, randomized control trial (RCT) comparing 6 months of rent and utilities support plus an advocate to standard of care (preventive services and an advocate without housing support). Participants are youth 18 to 24 years old, experiencing homelessness, without current opioid disorder, are able to understand English and to provide informed consent. Participants are recruited from drop-in shelters and during homeless services screenings on the street.

Main Hypotheses

1. Compared to those receiving prevention services alone, youth receiving the intervention will show better health outcomes
2. Compared to those receiving prevention services alone, youth receiving the intervention will be less likely progress to OUD and will be more likely to remain housed at one year.

Key Outcomes

The primary outcome of HOME is whether OUD is or is not present. Other key outcomes include number of days housed, ED visits, number of evictions, number of days using opioids, and HIV risk behavior.

Progress to Date

A pilot study of HOME has already been completed to provide feasibility and power estimates for the larger RCT. The pilot included 21 youths who were 80% Black or African American, represented a group at risk with high rates of drug use and suicidal behavior, and approximately 40% had previous convictions or outstanding warrants that were preventing them from obtaining housing. The HOME RCT has now recruited 229 youth experiencing homelessness and randomized them to one of the two trial arms. Key successes of HOME include the following:

- Recruitment of 229 participants out of the target 240.
- Evidence from the pilot study demonstrated that YILS was highly engaged in support services, remained almost completely housed, and showed short-term improvements in cognitive functioning and drug-related consequences.
- At 3-month follow-up, retention of the 229 participants is at 83% and most have been housed.

A key challenge for HOME has been landlord demands for higher rent amid a competitive housing market that have encouraged landlords not to engage with HOME but rather to receive higher payments from elsewhere. As a result, HOME staff has made several changes in working with landlords including increasing the range of rent payments from a maximum of \$650/month to \$900/month, offering to pay pet fees for those with animals, and paying renters insurance directly.

Highlights

- HOME seeks to address structural-level inequities of housing access for those youth with a history of incarceration and involvement in the legal system by engaging with the housing system including landlords.
- Barriers thus far have been related to working with landlords in a rapidly shifting housing market.
- This HOME trial will result in evidence for multi-level interventions seeking to address housing insecurity among a vulnerable population.

Leveraging Safe Adults

Intervention Description and Study Objectives

Leveraging Safe Adults (LeSA) examines the effectiveness of the Trust-Based Relational Intervention® (TBRI) which has the potential to equip youth and their caregivers with self-regulatory and communication skills to support the youth's transition home from the legal system. In addition to prevention of the initiation or escalation of substance use and opioid misuse among youth, LeSA aims to reduce recidivism, and demonstrate a cost-effective and feasible trauma-informed program for youth in secure, juvenile legal system facilities.

TBRI can be implemented in secure facilities as both a youth/caregiver intervention and a broader caregiving model. This relational intervention is grounded in attachment theory (Purvis et al., 2013) and aims to prevent the initiation or escalation of opioid use among YILS by cultivating youth and caregiver relationships prior to the youth's arrival at their transition home (Knight et al., 2021). In TBRI, caregivers are taught to build trust, practice authentic communication, develop boundaries, and set realistic expectations as "safe adults" that identify and address their youth's needs. Through interactions with safe adults, youth learn and practice self-regulation, enabling them to abstain from opioid and other substance use and other activities that put them at risk.

TBRI has been adapted for use as a preventive intervention targeting adolescents at risk for SUD. The intervention, delivered while youth are in residential care, includes nine caregiver-only sessions, nine youth-only sessions, and four caregiver-youth sessions. Following release, families are randomly assigned to receive one of three in-home support formats. Participants are encouraged to incorporate their own familial and cultural traditions into discussions, and materials and content delivery are available in both English and Spanish.

The approach used in LeSA focuses on three levels, as utilized in the social ecological model (Jalali et al., 2020): individual (e.g., youth self-regulation), interpersonal (e.g., youth-caregiver relationships), and communal (e.g., use of trauma-informed strategies by juvenile legal system facility staff). The objective of LeSA is to leverage relationships with caregivers to prevent opioid initiation and/or escalation of substance use among adolescents re-entering communities after detainment in residential facilities.

Design and Sample

The LeSA is a Type 1 Hybrid Effectiveness-Implementation trial, with agencies randomized to start date and individuals' randomization to TBRI® support condition (Knight et al., 2021). The benefits of a Type 1 Hybrid Effectiveness-Implementation trial are the testing of a novel intervention with limited evidence, while collecting data on implementation to improve scale-up and dissemination of the prevention intervention if LeSA is demonstrated as effective.

The LeSA study design enables a comparison of TBRI and standard re-entry (using a delayed-start design in which each facility serves as its own control), as well as an RCT comparing three TBRI coaching or support formats: TBRI training only; TBRI training +

structured coaching (four in-home sessions); or (3) TBRI training + responsive coaching (at least two in-home sessions, with more available depending on the youth's need/risk).

The focus population of this study is youth detained in juvenile detention facilities and their caregivers. Facility staff identify youth that meet study criteria and describe the project to them. If the youth and caregiver agree, facility staff will share their contact information with research staff and introduce the project to youth and caregivers. All eligible youth are invited to participate. Contact information for interested families is then shared with LeSA staff who describe the project and obtain parent consent and youth assent.

Main Hypotheses

1. Compared to youth receiving standard re-entry only, youth receiving TBRI in addition to standard re-entry procedures will be less likely to initiate opioid use following discharge.
2. Compared to no in-home TBRI support, youth receiving structured or responsive coaching are less likely to initiate opioid use following discharge, with the longest time to initiation occurring among youth receiving responsive coaching.
3. TBRI will be most effective for preventing opioid initiation when facilities routinely use TBRI strategies within their residential settings prior to the youth transition to home.

Key Outcomes

The primary outcome of LeSA is number of days to youth initiation of non-medical opioid use. Other key outcomes include putative change mechanisms, such as self-regulation (e.g., emotion regulation, positive urgency, negative urgency), dyad relationship, psychosocial functioning (e.g., anxiety, depression, affective responsiveness, hyperactivity, conduct problems), public health (e.g., receipt of mental health or substance use prevention services, overdose occurrence), and public safety outcomes (e.g., recidivism).

Progress to Date

Data from pilot work indicated that none of the eight youths who participated reported opioid use following the intervention, and each dyad reported improved youth-caregiver relationship. Youth also reported less hyperactivity, lower negative urgency, and fewer conduct problems. Key successes of LeSA include the following:

- Recruited 111 participants out of the target 360.
- Demonstrated by qualitative interviews and high session attendance, youth and their caregivers, as well as staff serving YILS, found the intervention to be both feasible and acceptable.
- Established partnership with 11 juvenile facilities from two states for recruitment.

Key challenges for LeSA include slower than anticipated study recruitment due to reductions in the expected numbers of YILS (based on a census), as well as impacts caused

by the COVID-19 pandemic including limited access to families due to restrictions on youth/family contact and high staff turnover within the criminal legal system. The LeSA project has addressed these challenges thus far by adding additional sites beyond the proposed six and by collaborating with teams of individuals at the sites to ensure continuity when an individual staff person departs the site.

Highlights

- LeSA seeks to identify key barriers and facilitators to implementation and sustainability while simultaneously evaluating opioid initiation and OUD prevention effectiveness, leveraging a hybrid implementation-effectiveness trial approach.
- LeSA has conducted a small-scale pilot demonstrating the effectiveness of the dyad intervention.
- The use of TBRI will result in improved caregiver relationships and organizational changes around trauma-informed care in the legal system.

Preventing Opioids Through Successful Transition

Intervention Description and Study Objectives

Preventing Opioids Through Successful Transition (POST) is a collaboration between two hospital systems and a state juvenile rehabilitation agency. The purpose of POST is to evaluate interventions of different intensities based on the Adolescent Community Reinforcement Approach Assertive Continuing Care (ACRA/ACC). Multiple studies have established the effectiveness of ACRA/ACC in *treating* SUD, including a few limited studies that have been conducted in YILS and that target youth with OUD (Godley et al., 2001, 2016, 2017; Henderson et al., 2016). However, no studies have evaluated it as an opioid initiation or OUD *prevention* strategy. POST is designed on the principle that the most effective opioid initiation/OUD prevention strategy for post-release YILS is to prevent, and when needed, treat non-opioid SUDs.

Youth are recruited approximately 4 to 5 months prior to their anticipated release date. POST has two phases. In phase 1, youth are randomly assigned to receive one of two different intensity interventions from support coaches:

1. A lower-intensity group initially receives a single session of ACRA focused on goal setting, followed by ACC case management both before and after release to help youth identify and access needed community resources and supports.
2. A high-intensity group that receives eight skill-building sessions combining ACRA and trauma affects regulation content (Ford & Hawke, 2012) and ACC case management prior to release as well as weekly skill review sessions post-release. This intervention also includes caregiver/adult support sessions, if the youth is willing to include these persons.

One month after release, a brief survey is administered by support coaches, and participants are re-randomized to either the same or the other intervention for the next 8 weeks. This

time from 1 month after release to 3 months after release is called phase 2. The phase 2 re-randomization is based on whether the youth reports that they are engaging in problematic substance use. Both groups, regardless of phase, utilize motivational interviewing to engage and retain youth (Hettema et al., 2005). The coaches delivering each intervention are trained on the broad needs of addressing the demographics of youth in the system, and their characteristics are reflective of the youth enrolled in the study. The objective of POST is to identify the most effective initial (phase 1) intervention, as well as the most effective intervention progression as the youth transition to the community (phase 2).

Design and Sample

The POST study uses a Sequential Multiple Assignment Randomized Trial (SMART) design to evaluate phase 1 and phase 2 interventions, with the goal of ultimately constructing the most effective adaptive intervention combining both phases (Ahrens et al., 2021, October). The sample is youth ages 15 to 25 years confined in the Washington State Department of Children, Youth, and Families Juvenile Rehabilitation system without moderate or severe OUD. Participants are eligible if they are confined in this system long enough to complete pre-transition intervention activities, speak English or Spanish well enough to participate in interventions and surveys, and do not have a mental health or developmental issue so severe that youth cannot provide informed consent, and participate in surveys or intervention activities.

Main Hypotheses

1. Compared to youth receiving the lower-intensity intervention, youth that begin in the higher-intensity intervention will report lower frequency and number of days of use of any substance in past 30 days.
2. Compared to youth receiving the lower-intensity intervention, youth that begin in the higher-intensity intervention will report lower rates of use of opioids at 3 and 6 months post-release.
3. Compared to youth receiving the lower-intensity intervention, youth that begin in the higher-intensity intervention will have lower rates of recidivism and better communication, problem solving, and drinking/drug refusal skills at 3 and 6 months post-release.

Key Outcomes

The primary outcome of POST is the number of days and frequency of use of any substance in past 30 days at 3- and 6-month follow-up time points. Other key outcomes include number of days and frequency of use in past 30 days of opioids, number of youth who are back in confinement after 90 days (recidivism), as well as proximal precursors to substance use and abstinence, such as self-efficacy to refuse alcohol or drugs. Additionally, key outcomes specific to ACRA-based content include communication, problem solving, anger management, and drinking/drug refusal skills.

Progress to Date

A pilot study with 31 youths has established feasibility and acceptability of the study protocol and intervention programming and identified necessary modifications to the recruitment and intervention protocols to ensure success of the full trial. Once available, investigators will use the full trial results to construct a high-quality, adaptive intervention containing ACRA/ACC-based strategies of different intensity levels designed to prevent OUD and reduce recidivism for YILS. Key successes of POST include the following:

- Enrollment of 158 participants out of the target 215 YILS with recruitment of 76% of all eligible youth.
- Establishing feasibility and acceptability during the pilot.
- At 3-month follow-up, retention of the 90 enrolled participants is above 75%.

Key challenges for POST include lower overall system census due to COVID-19; inaccurate reporting by Washington state of OUD and SUD status, and race/ethnicity; and difficulty conducting in-person sessions due to COVID-19. POST has addressed these challenges thus far by incorporating more sessions pre-release so that engagement, including goal setting, is increased before release and has also increased virtual engagement with participants.

Highlights

- POST represents a university-state system collaboration to prevent opioid use initiation and escalation.
- This collaboration has resulted in a successful feasibility pilot and high recruitment/retention numbers in the first year of the full study.
- POST will result in the development of an adaptive intervention that will maximize the balance between effectiveness and cost-effectiveness.

Novel Facets and Expected Outcomes of the HPC and JCOIN YILS Projects

The NIH HEAL Prevention Initiative is the first coordinated effort to develop OUD prevention interventions for youth and young adults. YILS are an underserved group primarily made up of often-stigmatized Black, American Indian, and Latinx youth (Abrams et al., 2021; Garcia, 2020; Winkelman et al., 2017). Indeed, racial and ethnic disproportionalities are amplified as youth progress from arrest to placement in a detention facility, particularly for Black, Native American/American Indian, and Latinx/Hispanic youth (Abrams et al., 2021). YILS are a critical population for prevention interventions because they are at high risk for opioid use, OUD, and overdose (Stone et al., 2012). Several factors make the four projects unique within the overall context of the opioid use/OUD literature. First is the focus on prevention rather than treatment; indeed, these are some of the first studies specifically targeting of key precursors to opioid use to prevent escalation to opioid use and OUD. Second, all projects necessarily integrate collection and analysis of cost data as well as planning for rapid implementation and scale-up of effective interventions. Integration of these components was an inherent part of the HEAL Prevention Initiative grant program announcement from NIDA and will allow investigators to generate the data needed to rapidly translate study findings and allow public systems to consider

making evidence-based preventive intervention services available and accessible to all young people at risk for opioid misuse or disorder.

Third, all projects have actively involved interested parties (including county and state government agencies, non-profit organizations) in the design and implementation of their approaches. Consequently, all go beyond individual-level factors to address policy, community, and organizational/agency factors at multiple levels of the criminal legal system spectrum. Intervention at these levels is challenging but offers the broadest impact and best opportunity for achieving prevention goals and addressing health care inequities (Frieden, 2010). Specifically, a focus on systems and organizations increases the likelihood that interventions will achieve scalability and sustainability, by.

- Improving connections between community-based treatment agencies and the criminal legal system (ADAPT);
- Providing housing regardless of SUD status (HOME);
- Equipping caregivers with strategies to identify needs and support youth as they transition out of incarceration (LeSA); and
- Providing individual coaching and support for youth as they transition out of incarceration through goal setting, case management, skill building, and recruitment of positive adult supports (POST).

Finally, to maximize the usefulness of individual project data, the HPC and JCOIN grantees have worked extensively to harmonize data collection instruments so that findings can be compared across studies. For example, combining LeSA and POST data may allow for identification of specific youth groups that benefit from a caregiver-focused approach (LeSA) or a youth-focused approach that emphasizes a combination of skills and less intensive family/social support components (POST). Moreover, the use of common data elements and harmonized measures will also shed light on prevention opportunities in populations that have been understudied, and how they are, or are not, like others. Among youths in the HOME study, multi-sector involvement (e.g., a youth with a combined history of foster care, criminal legal system involvement, and special education) is common.

Understanding which approaches have worked for parallel groups in other prevention studies will be advantageous in designing effective and cost-effective opioid prevention policy, as well as in informing additional, in-depth longitudinal studies to assess longer-term prevention outcomes. The harmonization of instruments and measures will also allow for the projects to combine the data to answer a range of questions about the trajectories of substance use, as well as factors that increase risk for or protect against the development of OUD (Ridenour et al., 2022). The pooled data could be used to look at the impacts of stable housing, prior trauma, or co-occurring mental health problems on substance use trajectories. Collectively, this research sets the stage for a deeper understanding of opioid use precursors and prevention in YILS in a continually evolving opioid crisis.

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References

- Aalsma MC, Aarons GA, Adams ZW, Alton MD, Boustani M, Dir AL, Embi PJ, Grannis S, Hulvershorn LA, Huntsinger D, Lewis CC, Monahan P, Saldana L, Schwartz K, Simon KI, Terry N, Wiehe SE, & Zapolski TCB (2021, Sep). Alliances to disseminate addiction prevention and treatment (ADAPT): A statewide learning health system to reduce substance use among justice-involved youth in rural communities. *Journal of Substance Abuse Treatment*, 128, 108368. 10.1016/j.jsat.2021.108368 [PubMed: 33867210]
- Aalsma MC, Dir AL, Zapolski TCB, Hulvershorn LA, Monahan PO, Saldana L, & Adams ZW (2019, Sep 6). Implementing risk stratification to the treatment of adolescent substance use among youth involved in the juvenile justice system: Protocol of a hybrid type I trial. *Addiction Science & Clinical Practice*, 14(1), 36. 10.1186/s13722-019-0161-5 [PubMed: 31492186]
- Abrams LS, Mizel ML, & Barnert ES (2021). The criminalization of young children and overrepresentation of Black youth in the juvenile justice system. *Race and Social Problems*, 13, 73–84. 10.1007/s12552-021-09314-7
- Ahrens K, Haggerty K, Coatney A, Albertson K, & Ryle T (2021, October). Opioid prevention for transitioning incarcerated youth: Feasibility/acceptability of a SMART protocol evaluating skill/social connection-based interventions of different intensities. In APHA 2021 Annual Meeting and Expo. APHA.
- AHRQ. (2019, May). About learning health systems. Agency for Healthcare Research and Quality. <https://www.ahrq.gov/learning-health-systems/about.html>
- Baglivio MT, Epps N, Swartz K, Sayedul Huq M, Sheer A, & Hardt NS (2014). The prevalence of adverse childhood experiences (ACE) in the lives of juvenile offenders. *Journal of Juvenile Justice*, 3(2), 1–23.
- Bakermans-Kranenburg MJ, Van Ijzendoorn MH, & Juffer F (2003). Less is more: Meta-analyses of sensitivity and attachment interventions in early childhood. *Psychological Bulletin*, 129(2), 195. [PubMed: 12696839]
- Bandura A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology*, 52, 1–26. 10.1146/annurev.psych.52.1.1
- Bath H. (2008). The three pillars of trauma-informed care. *Reclaiming Children and Youth*, 17(3), 17–21.
- Belenko S, Knight D, Wasserman GA, Dennis ML, Wiley T, Taxman FS, Oser C, Dembo R, Robertson AA, & Sales J (2017, Mar). The juvenile justice behavioral health services cascade: A new framework for measuring unmet substance use treatment services needs among adolescent offenders. *Journal of Substance Abuse Treatment*, 74, 80–91. 10.1016/j.jsat.2016.12.012 [PubMed: 28132705]
- Britton L, & Pilnik L (2018). Preventing homelessness for system-involved youth. *Juvenile and Family Court Journal*, 69(1), 19–33. 10.1111/jfcj.12107
- Chinman M, Hunter SB, & Ebener P (2012). Employing continuous quality improvement in community-based substance abuse programs. *International Journal of Health Care Quality Assurance*, 25(7), 604–617. 10.1108/09526861211261208 [PubMed: 23276056]
- Curran GM, Bauer M, Mittman B, Pyne JM, & Stetler C (2012, Mar). Effectiveness-implementation hybrid designs: combining elements of clinical effectiveness and implementation research to enhance public health impact. *Medical Care*, 50(3), 217–226. 10.1097/MLR.0b013e3182408812 [PubMed: 22310560]

- Ducharme LJ, Wiley TRA, Mulford CF, Su ZI, & Zur JB (2021). Engaging the justice system to address the opioid crisis: The Justice Community Opioid Innovation Network (JCOIN). *Journal of Substance Abuse Treatment*, 128, 108307. 10.1016/j.jsat.2021.108307 [PubMed: 33531212]
- Folk JB, Kemp K, Yurasek A, Barr-Walker J, & Tolou-Shams M (2021a, Feb-Mar). Adverse childhood experiences among justice-involved youth: Data-driven recommendations for action using the sequential intercept model. *American Psychologist*, 76(2), 268–283. 10.1037/amp0000769 [PubMed: 33734794]
- Folk JB, Ramos LMC, Bath EP, Rosen B, Marshall BDL, Kemp K, Brown L, Conrad S, & Tolou-Shams M (2021b, Jun). The prospective impact of adverse childhood experiences on justice-involved youth's psychiatric symptoms and substance use. *Journal of Consulting and Clinical Psychology*, 89(6), 483–498. 10.1037/ccp0000655 [PubMed: 34264697]
- Ford JD, & Hawke J (2012). Trauma affect regulation psychoeducation group and milieu intervention outcomes in juvenile detention facilities. *Journal of Aggression, Maltreatment & Trauma*, 21(4), 365–384.
- Frieden TR (2010). A framework for public health action: The health impact pyramid. *American Journal of Public Health*, 100(4), 590–595. 10.2105/AJPH.2009.185652 [PubMed: 20167880]
- Garcia JL (2020). Historical trauma and American Indian/Alaska Native youth mental health development and delinquency. *New Directions for Child and Adolescent Development*, 2020(169), 41–58. [PubMed: 32324321]
- Godley MD, Passeti LL, Subramaniam GA, Funk RR, Smith JE, & Meyers RJ (2017, May 1). Adolescent community reinforcement approach implementation and treatment outcomes for youth with opioid problem use. *Drug and Alcohol Dependence*, 174, 9–16. 10.1016/j.drugalcdep.2016.12.029 [PubMed: 28282523]
- Godley SH, Smith JE, Meyers RJ, & Godley MD (2001). The adolescent community reinforcement approach for adolescent cannabis users. U.S. Department of Health and Human Services.
- Godley SH, Smith JE, Meyers RJ, & Godley MD, (2016). The adolescent community reinforcement approach: A clinical guide for treating substance use disorders. Chestnut Health Systems.
- Graf GH, Chihuri S, Blow M, & Li G, (2021, Jan). Adverse childhood experiences and justice system contact: A systematic review. *Pediatrics*, 147(1). 10.1542/peds.2020-021030
- Grisso PE (2004). *Double jeopardy: Adolescent offenders with mental disorders*. University of Chicago Press.
- HEAL Prevention Cooperative (HPC). (2021). HPC profiles. National Institutes of Health. Retrieved January 10, 2022, from https://heal.nih.gov/files/2021-12/NIH_HEAL_Profiles_11%20%282%29%20%281%29.pdf
- Henderson CE, Wevodau AL, Henderson SE, Colbourn SL, Gharagozloo L, North LW, & Lotts VA (2016, Apr). An independent replication of the Adolescent-Community Reinforcement Approach with justice-involved youth. *American Journal on Addictions*, 25(3), 233–240. 10.1111/ajad.12366 [PubMed: 26992083]
- Hettema J, Steele J, & Miller WR (2005). Motivational interviewing. *Annual Review of Clinical Psychology*, 1, 91–111. 10.1146/annurev.clinpsy.1.102803.143833
- Hockenberry S, & Sladky A (2020). Juvenile residential facility census 2018: selected findings. (National Report Series Bulletin NCJ 255090). Retrieved August 19, 2022, from <https://ojjdp.ojp.gov/publications/jrfc-2018-selected-findings.pdf>
- Jalali MS, Botticelli M, Hwang RC, Koh HK, & McHugh RK (2020, Aug 6). The opioid crisis: a contextual, socialecological framework. *Health Research Policy and Systems*, 18(1), 87. 10.1186/s12961-020-00596-8 [PubMed: 32762700]
- Knight DK, Yang Y, Joseph ED, Tinius E, Young S, Shelley LT, Cross DR, & Knight K (2021) Preventing opioid use among justice-involved youth as they transition to adulthood: Leveraging Safe Adults (LeSA). *BMC Public Health*, 21(1), 1–17. [PubMed: 33388037]
- Kubek JB, Tindall-Biggins C, Reed K, Carr LE, & Fenning PA (2020). A systematic literature review of school reentry practices among youth impacted by juvenile justice. *Children and Youth Services Review*, 110, 104773.
- Mahoney AR (1974). The effect of labeling upon youths in the juvenile justice system: A review of the evidence. *Law & Society Review*, 8(4), 583–614.

- Mattson CL, Tanz LJ, Quinn K, Kariisa M, Patel P, & Davis NL (2021, Feb 12). Trends and geographic patterns in drug and synthetic opioid overdose deaths - United States, 2013–2019. *MMWR: Morbidity and Mortality Weekly Report*, 70(6), 202–207. 10.15585/mmwr.mm7006a4 [PubMed: 33571180]
- McLaughlin MF, Li R, Carrero ND, Bain PA, & Chatterjee A (2021, Jul 1). Opioid use disorder treatment for people experiencing homelessness: A scoping review. *Drug and Alcohol Dependence*, 224, 108717. 10.1016/j.drugalcdep.2021.108717 [PubMed: 33985863]
- Metraux S, & Culhane DP (2016). Recent incarceration history among a sheltered homeless population. *Crime & Delinquency*, 52(3), 504–517. 10.1177/0011128705283565
- Moschion J, & Johnson G (2019). Homelessness and incarceration: A reciprocal relationship? *Journal of Quantitative Criminology*, 35(4), 855–887. 10.1007/s10940-019-09407-y
- Moullin JC, Dickson KS, Stadnick NA, Rabin B, & Aarons GA (2019). Systematic review of the exploration, preparation, implementation, sustainment (EPIS) framework. *Implementation Science*, 14(1), 1–16. 10.1186/s13012-018-0842-6 [PubMed: 30611302]
- Mulvey EP, Schubert CA, & Chassin L (2010). Substance use and delinquent behavior among serious adolescent offenders: (506942011–001). American Psychological Association. 10.1037/e506942011-001
- Narendorf SC, Brydon DM, Santa Maria D, Bender K, Ferguson KM, Hsu H-T, Barman-Adhikari A, Shelton J, & Petering R (2020). System involvement among young adults experiencing homelessness: Characteristics of four system-involved subgroups and relationship to risk outcomes. *Children and Youth Services Review*, 108, 104609. 10.1016/j.childyouth.2019.104609
- Omura JD, Wood E, Nguyen P, Kerr T, & DeBeck K (2014, Mar). Incarceration among street-involved youth in a Canadian study: Implications for health and policy interventions. *International Journal on Drug Policy*, 25(2), 291–296. 10.1016/j.drugpo.2013.10.010 [PubMed: 24405564]
- Prinz RJ, & Kerns SE (2003, Summer). Early substance use by juvenile offenders. *Child Psychiatry and Human Development*, 33(4), 263–277. 10.1023/a:1023030428491 [PubMed: 12723900]
- Purvis KB, Cross DR, Dansereau DF, & Parris SR (2013, Oct). Trust-Based Relational Intervention (TBRI): A systemic approach to complex developmental trauma. *Children and Youth Services Review*, 34(4), 360–386. 10.1080/0145935X.2013.859906
- Ranapurwala SI, Figgatt MC, Remch M, Brown C, Brinkley-Rubinstein L, Rosen DL, Cox ME, & Proescholdbell SK (2022, Jan). Opioid Overdose Deaths Among Formerly Incarcerated Persons and the General Population: North Carolina, 2000–2018. *American Journal of Public Health*, 112, 300–303. 10.2105/AJPH.2021.306621 [PubMed: 35080937]
- Reuter P, Pardo B, & Taylor J (2021). Imagining a fentanyl future: Some consequences of synthetic opioids replacing heroin. *The International Journal on Drug Policy*, 94, 103086. 10.1016/j.drugpo.2020.103086 [PubMed: 33423915]
- Rhee TG, & Rosenheck RA (2021, Aug). Opioid analgesic use and its sequelae: Opioid and other substance use disorders. *Early Intervention in Psychiatry*, 15(4), 975–982. 10.1111/eip.13043 [PubMed: 32930517]
- Ridenour TA, Cruden G, Yang Y, Bonar EE, Rodriguez A, Saavedra LMH, M. A, Walton MA, Deeds B, Ford JL, Knight DK, Haggerty KP, Stormshak E, Kominsky TK, Ahrens KR, Woodward D, Feng X, Fiellin LE, Wilens TE, Klein DJ, & Fernandes CS, (2022). Methodological strategies for prospective harmonization of studies: Application to 10 distinct outcomes studies of preventive interventions targeting opioid misuse. *Prevention Science*, 1–14.
- Rogers CJ, Pakdaman S, Forster M, Sussman S, Grigsby TJ, Victoria J, & Unger JB (2022, May 1). Effects of multiple adverse childhood experiences on substance use in young adults: A review of the literature. *Drug and Alcohol Dependence*, 234, 109407. 10.1016/j.drugalcdep.2022.109407 [PubMed: 35306395]
- SAMHDA. (2015). Treatment episode data set: Discharges 2013 data set (TEDS-D-2013-DS0001. Substance Abuse and Mental Health Data Archive. Retrieved October 5, 2021, from <https://datafiles.samhsa.gov/study-dataset/treatment-episode-data-set-discharges-2013-teds-d-2013-ds0001-nid16948>

- Sample K, & Ferguson KM (2019). It shouldn't be this hard: Systemic, situational, and intrapersonal barriers to exiting homelessness among homeless young adults. *Qualitative Social Work*, 19(4), 580–598. 10.1177/1473325019836280
- Santo T Jr., Campbell G, Gisev N, & Degenhardt L (2022). Exposure to childhood trauma increases risk of opioid use disorder among people prescribed opioids for chronic non-cancer pain. *Drug and Alcohol Dependence*. 10.1016/j.drugalcdep.2021.109199
- Steiner H, Silverman M, Karnik NS, Huemer J, Plattner B, Clark CE, & Haapanen R (2011). Psychopathology, trauma and delinquency: subtypes of aggression and their relevance for understanding young offenders. *Child and Adolescent Psychiatry and Mental Health*, 5(1), 1–11. 10.1186/1753-2000-5-21 [PubMed: 21214953]
- Stone AL, Becker LG, Huber AM, & Catalano RF (2012, Jul). Review of risk and protective factors of substance use and problem use in emerging adulthood. *Addictive Behaviors*, 37(7), 747–775. 10.1016/j.addbeh.2012.02.014 [PubMed: 22445418]
- Sung HE, Richter L, Vaughan R, Johnson PB, & Thom B (2005, Jul). Nonmedical use of prescription opioids among teenagers in the United States: Trends and correlates. *Journal of Adolescent Health*, 37(1), 44–51. 10.1016/j.jadohealth.2005.02.013
- Tolou-Shams M, Brown LK, Marshall BDL, Dauria E, Koinis-Mitchell D, Kemp K, & Poindexter B (2019). The behavioral health needs of first-time offending justice-involved youth: Substance use, sexual risk and mental health. *Journal of Child & Adolescent Substance Abuse*, 28(5), 291–303. 10.1080/1067828x.2020.1774023 [PubMed: 34220180]
- Wasserman GA, McReynolds LS, Schwalbe CS, Keating JM, & Jones SA (2010). Psychiatric disorder, comorbidity, and suicidal behavior in juvenile justice youth. *Criminal Justice and Behavior*, 37(12), 1361–1376. 10.1177/0093854810382751
- White LM, Aalsma MC, Salyers MP, Hershberger AR, Anderson VR, Schwartz K, Dir AL, & McGrew JH (2019, Jun). Behavioral health service utilization among detained adolescents: A meta-analysis of prevalence and potential moderators. *Journal of Adolescent Health*, 64(6), 700–708. 10.1016/j.jadohealth.2019.02.010
- Winkelman TN, Frank JW, Binswanger IA, & Pinals DA (2017). Health conditions and racial differences among justice-involved adolescents, 2009 to 2014. *Academic Pediatrics*, 17(7), 723–731. [PubMed: 28300655]
- Young DW, Dembo R, & Henderson CE (2007, Apr). A national survey of substance abuse treatment for juvenile offenders. *Journal of Substance Abuse Treatment*, 32(3), 255–266. 10.1016/j.jsat.2006.12.018 [PubMed: 17383550]

Table 1

Characteristics of project Sites

	ADAPT	HOME	LeSA	POST
PI(s)	Matthew Aalsma	Natasha Slesnick and Kelly Kelleher	Danica Knight	Kym Ahrens and Kevin Haggerty
Funding	JCOIN ^a	HPC ^d	HPC ^d	HPC ^d
Setting/geography	Indiana	Ohio	Texas; Illinois	Washington
Target population(s)	Youth involved in the legal system	Youth experiencing homelessness, aged 18–24 years	Youth in confinement, aged 15–18 years	Youth in confinement, aged 15–25 years, without severe OUD
Sample size	Parent/guardian of youth <i>n</i> = 8000	<i>n</i> = 240	Caregiver of youth <i>n</i> = 360	<i>n</i> = 215
Intervention	Learning Health System	Homelessness advocacy with 6 months of rent and utilities support	Trust-based Relational Intervention ^{®f}	Adolescent Community Reinforcement Approach, Motivational Interviewing, Trauma Affect Regulation
Location of intervention delivery	Community mental health centers, juvenile courts/probation departments	Scattered site (i.e., individual) rental units	Secure, residential facilities	Confinement Setting, Community
Study design	Hybrid Type 2 Effectiveness/Implementation Trial	Randomized control trial (RCT)	Hybrid Type 1 Effectiveness/Implementation Trial	Sequential, Multiple Assignment, Randomized Trial (SMART)
Theory/frameworks	Juvenile Justice Behavioral Health Services Care Cascade ^b ; Exploration, Preparation, Implementation, Sustainment (EPIS) Framework ^c	Social cognitive theory (including self-efficacy, social control) ^e	Attachment theory ^g ; Three pillars of trauma-wise care ^h	Operant Behavior; Emotion Regulation
Anticipated timeline	Full Trial Recruitment and Intervention Delivery: Spring 2021–Winter 2024 Final Assessments: February 2024	Full Trial Recruitment and Intervention Delivery: September 2021–February 2024 Final Assessments: February 2024	Full Trial Recruitment and Intervention Delivery: March 2021–December 2023 Final Assessments: March 2024	Full trial Recruitment and Intervention Delivery: September 2021–September 2023 Final Assessments: March 2024

^aJustice Community Opioid Innovation Network

^bBelenko et al. (2017)

^cEPIS; Moullin et al. (2019)

^dHEAL Prevention Cooperative (2021)

^eBandura (2001)

^fPurvis et al. (2013)

^gBakermans-Kranenburg et al. (2003)

^hBath (2008)