



CFAR Substance Use Research Core (SURC) Faculty Publication and New Awards Digest

New research on HIV and substance use by our SURC faculty.

If you have any other publications or awards, please send them to [Natalia Gnatienko](#) to include in the next publication digest!

Please remember to cite CFAR support (P30AI042853) on your future publications!

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Announcements

The Inter-CFAR Substance Use Research Community (I-SURC) is pleased to announce a new quarterly I-SURC Early Stage Investigator Spotlight Seminar Series! The purpose of this seminar series is to provide a platform for early stage investigators to disseminate their work to a national audience of CFAR investigators with specific interests in the intersection of HIV and substance use. This opportunity is reserved for CFAR-affiliated early career investigators (post-doctoral fellow or faculty with no more than 5 years at the Assistant Professor level), who would like to present work that has either not yet been published or was published less than a year ago. If you are interested in being considered for this opportunity, [please complete this brief form](#).

Additionally, the I-SURC is opening up a limited number of grant application feedback opportunities (i.e., K-series, first R-series) for early career investigators who have never received R01 funding. If you are applying for these types of awards and are interested in receiving feedback on your application from senior HIV and substance use researchers, [please click here](#).

Relevant Funding Announcements

[RFA-DA-24-004](#): Targeting Inflammasomes in Substance Abuse and HIV (R21 Clinical Trial Not Allowed)

[RFA-DA-24-003](#): Targeting Inflammasomes in Substance Abuse and HIV (R01 Clinical Trial Not Allowed)

[RFA-DA-24-002](#): Exploratory studies to investigate mechanisms of HIV infection, replication, latency, and/or pathogenesis in the context of substance use disorders (R61/R33 - Clinical Trial Not Allowed)

[RFA-DA-24-013](#): Mechanisms and Targets at the Intersection of HIV and Substance Use (R01 Clinical Trials Not Allowed)

View more NIDA funding opportunities at the intersection of HIV and substance use [here](#).

Please [let us know](#) if you are interested in pursuing these opportunities!

New Publications

Virally suppressed people living with HIV who use opioids have diminished latency reversal. [Viruses](#). 2023; 15(2):415.

Basukala B, Rossi S, Bendiks S, Gnatenko N, Patts G, Krupitsky E, Lioznov D, **So-Armah K**, Sagar M, Cheng C, Henderson AJ.

Of the 12 million people who inject drugs worldwide, 13% live with HIV. Whether opioid use impacts HIV pathogenesis and latency is an outstanding question. To gain insight into whether opioid use influences the proviral landscape and latent HIV reservoir, we performed intact proviral DNA assays (IPDA) on peripheral blood mononuclear cells (PBMCs) from antiretroviral therapy (ART)-suppressed people living with HIV (PWH) with or without current opioid use. No differences were observed between PWH with and without opioid use in the frequency of HIV intact and defective proviral genomes. To evaluate the latent reservoir, we activated PBMCs from ART-suppressed PWH with or without opioid use and assessed the induction of HIV RNA. PWH using opioids had diminished responses to ex vivo HIV reactivation, suggesting a smaller reversible reservoir of HIV-1 latently infected cells. However, in vitro studies using primary CD4⁺ T cells treated with morphine showed no effect of opioids on HIV-1 infection, replication or latency establishment. The discrepancy in our results from in vitro and clinical samples suggests that while opioids may not directly impact HIV replication, latency and reactivation in CD4⁺ T cells, opioid use may indirectly shape the HIV reservoir in vivo by modulating general immune functions.

Incarceration history, antiretroviral therapy, and stigma: A cross-sectional study of people with HIV who inject drugs in St. Petersburg, Russia. [Int J Drug Policy](#). 2022 Nov 16;111:103907. Epub ahead of print.

Bovell-Ammon BJ, Kimmel SD, Cheng DM, Truong V, Michals A, Vetrova M, Hook K, Idrisov B, Blokhina E, Krupitsky E, **Samet JH, Lunze K**.

Background: The HIV epidemic is intertwined with substance use and incarceration in Russia. The relationships between incarceration history, HIV treatment history, and stigma experiences among people with HIV (PWH) who inject drugs in Russia have not been well described.

Methods: We conducted a cross-sectional study of a cohort of PWH with opioid use disorder who inject drugs (n=201) recruited at a narcology (substance use treatment) hospital in St. Petersburg, Russia from September 2018 to December 2020. The primary analysis evaluated the association between self-reported prior incarceration and prior antiretroviral therapy (ART) initiation using multivariable logistic regression to adjust for demographic, social, and clinical covariates. We used multivariable linear regression models to analyze associations between prior incarceration and two secondary outcomes: HIV stigma score (11-item abbreviated Berger scale) and substance use stigma score (21-item combination of Substance Abuse Self-Stigma Scale and Stigma-related Rejection Scale).

Results: Mean age was 37 (SD 5) years; 58.7% were male. Participants had been living with HIV for a mean of 13 (SD 6) years. Over two thirds (69.2%) of participants reported prior incarceration. One third (35.3%) of participants reported prior ART initiation. Prior

incarceration was not significantly associated with prior ART initiation (AOR 1.76; 95% CI: 0.81, 3.83). Prior incarceration was associated with a lower HIV stigma score (adjusted mean difference in z-score: -0.50; 95%CI: -0.81, -0.19) but was not significantly associated with substance use stigma score (adjusted mean difference in z-score: -0.10; 95%CI: -0.42, 0.21).

Conclusion: Prior incarceration was common, and rates of prior ART initiation were low even though most participants had been living with HIV for at least a decade. We did not find an association between prior incarceration and prior ART initiation, which suggests a need to explore whether opportunities to initiate ART during or after incarceration are missed.

HIV exposure prophylaxis delivery in a low-barrier substance use disorder bridge clinic during a local HIV outbreak at the onset of the COVID-19 pandemic. [J Addict Med.](#) 2022 Nov-Dec 01;16(6):678-683. PMID: PMC9653062.

Braun HM, Walter C, Farrell N, **Biello KB**, Taylor JL.

Objectives: People who inject drugs (PWID) may experience high human immunodeficiency virus (HIV) risk and inadequate access to biomedical HIV prevention. Emerging data support integrating HIV post-exposure and pre-exposure prophylaxis (PEP, PrEP) into services already accessed by PWID. We describe PEP/PrEP eligibility and receipt in a low-barrier substance use disorder bridge clinic located in an area experiencing an HIV outbreak among PWID at the onset of the COVID-19 pandemic.

Methods: Retrospective chart review of new patients at a substance use disorder bridge clinic in Boston, MA (January 15, 2020-May 15, 2020) to determine rates of PEP/PrEP eligibility and prescribing.

Results: Among 204 unique HIV-negative patients, 85.7% were assessed for injection-related and 23.0% for sexual HIV risk behaviors. Overall, 55/204 (27.0%) met CDC criteria for HIV exposure prophylaxis, including 7/204 (3.4%) for PEP and 48/204 (23.5%) for PrEP. Four of 7 PEP-eligible patients were offered PEP and all 4 were prescribed PEP. Thirty-two of 48 PrEP eligible patients were offered PrEP, and 7/48 (14.6%) were prescribed PrEP. Additionally, 6 PWID were offered PrEP who lacked formal CDC criteria.

Conclusions: Bridge clinics patients have high rates of PEP/PrEP eligibility. The majority of patients with identified eligibility were offered PEP/PrEP, suggesting that upstream interventions that increase HIV risk assessment may support programs in initiating PEP/PrEP care. Additional work is needed to understand why patients declined PEP/PrEP. PrEP offers to PWID who did not meet CDC criteria also suggested provider concern regarding the sensitivity of CDC criteria among PWID. Overall, bridge clinics offer a potential opportunity to increase biomedical HIV prevention service delivery.

Evidence-based interventions to improve opioid prescribing in primary care: A qualitative assessment of implementation in two studies. [J Gen Intern Med.](#) 2022 Nov 17. Epub ahead of print.

Carroll JJ, Cushman PA, Lira MC, Colasanti JA, Del Rio C, Lasser KE, Parker V, Roy PJ, **Samet JH**, Liebschutz JM.

Background: The TOPCARE and TEACH randomized controlled trials demonstrated the efficacy of a multi-faceted intervention to promote guideline-adherent long-term opioid therapy (LTOT) in primary care settings. Intervention components included a full-time Nurse Care Manager (NCM), an electronic registry, and academic detailing sessions.

Objective: This study sought to identify barriers, facilitators, and other issues germane to the wider implementation of this intervention.

Design: We conducted a nested, qualitative study at 4 primary care clinics (TOPCARE) and 2 HIV primary care clinics (TEACH), where the trials had been conducted.

Approach: We purposively sampled primary care physicians and advanced practice providers (hereafter: PCPs) who had received the intervention. Semi-structured interviews explored perceptions of the intervention to identify unanticipated barriers to and facilitators of implementation. Interview transcripts were analyzed through iterative deductive and inductive coding exercises.

Key results: We interviewed 32 intervention participants, 30 physicians and 2 advanced practice providers, who were majority White (66%) and female (63%). Acceptability of the intervention was high, with most PCPs valuing didactic and team-based intervention

elements, especially co-management of LTOT patients with the NCM. Adoption of new prescribing practices was facilitated by proximity to expertise, available behavioral health care, and the NCM's support. Most participants were enthusiastic about the intervention, though a minority voiced concerns about the appropriateness in their particular clinical environments, threats to the patient-provider relationship, or long-term sustainability.

Conclusion: TOPCARE/TEACH participants found the intervention generally acceptable, appropriate, and easy to adopt in a variety of primary care environments, though some challenges were identified. Careful attention to the practical challenges of implementation and the professional relationships affected by the intervention may facilitate implementation and sustainability.

The impact of the COVID-19 pandemic on stress, isolation, smoking behaviors, and motivation to quit in people with HIV who smoke. [AIDS Behav.](#) 2022 Nov 11:1–8.

Epub ahead of print. PMCID: PMC9649403.

Cioe PA, Schnoll R, Hoepfner BB, Gross R, Hitsman BL, Leone FT, Ashare R, Vilardaga R, Tashima K, Pinkston M, **Kahler CW**.

People with HIV (PWH) smoke at higher rates compared with the general population and have lower cessation rates. The primary aim of this study was to examine the impact of the COVID-19 pandemic on smoking in PWH. A survey was administered to participants in two smoking cessation trials in the United States. Mean cigarettes per day was 13.9 (SD 8.6), and participants reported they had smoked on average for 30.93 years (SD 10.4). More than half (55.7%) of participants (N = 140) reported not changing their smoking during the pandemic, while 15% reported decreasing, and 25% reported increasing their smoking. In bivariate analyses, worrying about food due to lack of money ($\chi^2 = 9.13$, df 2, $p = 0.01$) and greater Covid-related worry ($r_s = 0.19$, $p = 0.02$) were significantly associated with increased smoking. Qualitative research may be needed to more clearly elucidate factors related to smoking behaviors among PWH.

Perspectives on long-acting injectable HIV antiretroviral therapy at an alternative care site: a qualitative study of people with HIV experiencing substance use and/or housing instability. [Harm Reduct J.](#) 2023 Jan 10;20(1):4. PMCID: PMC9830853.

Fletcher L, Burrowes SAB, Khan GK, Sabin L, Johnson S, Kimmel SD, Ruiz-Mercado G, Pierre C, **Drainoni ML**.

Introduction: Adherence to daily oral antiretroviral therapy (ART) and regular clinic appointments can be challenging for individuals who experience adverse social determinants of health. Long-acting injectable ART administered outside of traditional clinic settings may be a promising solution to adherence barriers, but additional research is needed to assess patients' perspectives. This study assessed perspectives of people living with HIV (PLWH) who had difficulty with adherence to traditional HIV care models and evaluated feasibility and acceptability of receiving a long-acting ART injection at a location outside of a traditional HIV clinic to address barriers to HIV care.

Methods: Qualitative interviews (n = 26) were conducted with PLWH who had experienced barriers to adherence. Participants were referred to the study by staff from Project Trust, a drop in harm reduction and sexually transmitted infection/HIV clinic. The interviews were conducted between May and November 2021. Interviews were recorded, professionally transcribed, coded, and analyzed qualitatively using the integrated-Promoting Action on Research Implementation in Health Services framework.

Results: We identified 6 main themes regarding the acceptability of receiving a long-acting injection to treat HIV, and the acceptability and feasibility of receiving injections at an alternative care site. Participants specified that they: (1) have a general understanding about their HIV care and the importance of ART adherence, (2) prefer a long-acting injection over a daily pill regimen, (3) expressed concerns about injection safety and efficacy, (4) had specific logistical aspects around the delivery of long-acting injections, including location of injection administration, that they believed would improve their ability to adhere, (5) have confidence that they can become undetectable and then complete the oral lead-in required to begin receiving the injection, and (6) see potential barriers that remain a concern for successful adherence to long-acting injections.

Conclusion: To better treat HIV among people who are living with challenging social determinants of health, interventions that include a long-acting injection in a non-traditional

care setting may prove to be a promising treatment option.

Food insecurity and transmission risks among people with HIV who use substances. [AIDS Behav](#). 2023 Jan 21. PMID: PMC9859749

Idrisov B, **Lunze K**, Cheng DM, Blokhina E, Gnatienco N, Patts G, Briden C, Rossi SL, Weiser SD, Krupitsky E, **Samet JH**.

Food insecurity (FI) impacts people with HIV (PWH) and those who use substances (i.e. drugs and alcohol). We evaluated the longitudinal association between FI and HIV transmission risks (unprotected sexual contacts and shared needles/syringes). Among 351 PWH who use substances in Russia, 51.6% reported FI and 37.0% past month injection drug use. The mean number of unprotected sexual contacts in the past 90 days was 13.4 (SD 30.1); 9.7% reported sharing needles/syringes in the past month. We did not find a significant association between mild/moderate FI (adjusted IRR = 0.87, 95% CI 0.47, 1.61) or severe FI (aIRR = 0.84, 95% CI 0.46, 1.54; global $p = 0.85$) and unprotected sexual contacts. We observed a significant association between severe FI and sharing needles/syringes in the past month (adjusted OR = 3.27, 95% CI 1.45, 7.39; $p = 0.004$), but not between mild/moderate FI and sharing needles/syringes in the past month (aOR = 1.40, 95% CI 0.58, 3.38; $p = 0.45$). These findings suggest that severe FI could be a potential target for interventions to lower HIV transmission.

Brief report: Use of pre-exposure prophylaxis to prevent rapid HIV transmission among people who inject drugs in rural counties in the United States: A modeling study. [J Acquir Immune Defic Syndr](#). 2022 Dec 15;91(5):449-452. PMID: PMC9649854. Jacka BP, Nolen S, Bessey SE, Zang X, **Goedel WC**, Yedinak JL, **Marshall BDL**.

Background: Despite recent HIV outbreaks among people who inject drugs (PWID) in nonurban US settings, syringe service programs (SSP) are often inaccessible in these communities. Furthermore, pre-exposure prophylaxis (PrEP) awareness and coverage for PWID is limited. We aimed to model the impact of PrEP on HIV transmission among PWID in a rural setting.

Setting: Using a calibrated agent-based model, we simulated HIV transmission in an adult population ($n = 14,573$ agents) in Scott County, Indiana between 2015 and 2024.

Methods: We modeled PrEP eligibility according to CDC guidelines for PWID. PrEP coverage increased by 15% points in the range 10%-70%. Two counterfactual scenarios were modeled: Unrestricted access for PWID and PrEP for SSP attendees. We calculated the number of new HIV infections and number of person-years on PrEP per averted infection.

Results: In the status quo scenario, 153 (95% Simulation Interval: 85, 259) new HIV infections occurred among PWID over 10 years. Compared with the status quo, 40% PrEP coverage resulted in 25% fewer HIV infections in the Unrestricted access for PWID scenario and 10% fewer HIV infections in the PrEP for SSP attendees scenario. The PYPAI was 21 and 43 in the Unrestricted access for PWID and PrEP for SSP attendees scenarios, respectively.

Conclusion: Our modeling suggests that PrEP provides substantial benefit to PWID in rural US communities, with fewer restrictions on access providing the greatest effect. Control of HIV outbreaks will require expansion of public health interventions that meet the needs of all individuals.

Study protocol for a pilot randomized trial of a virtual occupational therapy fall prevention intervention for people with HIV and alcohol use. [Subst Abuse](#). 2022 Dec 23;16:11782218221145548. PMID: PMC9791282.

Shin D, Gill SV, **Kim TW**, Magane KM, Mason T, Heeren T, Winter M, Helfrich C, Saitz R.

Background: People living with HIV (PLWH) are at risk for falls due to polypharmacy, unhealthy substance (risky alcohol and/or illicit drug) use, low physical activity, and frailty combined with typical age-related physical changes. Fall prevention is needed to reduce the morbidity related to falls and fractures, however, there is a paucity of data on the design of a fall prevention intervention and whether it can be delivered virtually. We describe the protocol of a pilot randomized trial of a virtual occupational therapy fall

prevention intervention for people with HIV at high risk for falls and recent alcohol and/or drug use.

Method: PLWH will be recruited from the Boston ARCH 4F Cohort study, an observational study of PLWH to examine the impact of alcohol on falls. Trial participants will be randomized to either an occupational therapy-led fall prevention intervention or provided with written education about fall prevention and alcohol use (control). The 10-week fall prevention intervention was based upon results from qualitative interviews with PLWH about falls and will consist of weekly virtual group sessions, home exercises and phone-check-ins, delivered by occupational therapists. The primary outcome measures will be number of groups attended and a participant-completed satisfaction survey. Change in number of falls, alcohol and other drug use, and physical functioning will be examined.

Discussion: A virtual occupational therapy fall prevention intervention addresses the emerging concern of fall risk in PLWH and alcohol use. This pilot study will provide preliminary estimates of fall-related outcomes as well as feasibility of study procedures for a larger trial.

Structural equation modeling of stigma and HIV prevention clinical services among transgender and gender diverse adults: The mediating role of substance use and HIV sexual risk. [J Acquir Immune Defic Syndr](#). 2022 Dec 14. Epub ahead of print.

Wolfe HL, Drainoni ML, Klasko-Foster L, Fix GM, Siegel J, Mimiaga MJ, Reisner SL, Hughto JMW.

Background: Transgender and gender diverse (TGD) adults experience high levels of stigma which contributes to elevated substance use and HIV sexual risk behaviors. Despite higher burdens of substance use and HIV, TGD individuals may be less likely to engage in healthcare to avoid further discrimination.

Setting: This analysis included 529 TGD adults in Massachusetts and Rhode Island who were HIV-negative or had an unknown HIV serostatus and were purposively sampled between March and August 2019.

Methods: We used structural equation modeling to test whether substance use, HIV sexual risk behaviors (i.e., condom use, sex work, multiple partners), and receiving gender-affirming hormone therapy mediate any observed association between TGD-related stigma and utilization of HIV prevention clinical services (i.e., HIV prevention programs, PrEP use, HIV testing).

Results: Substance use and HIV sexual risk mediated the relationship between TGD-related stigma and utilization of HIV prevention clinical services ($\beta=0.08$; 95% CI=0.01, 0.17; $p=0.03$ and $\beta=0.26$; 95% CI=0.14, 0.37; $p<0.001$). Having a hormone therapy prescription was not a mediator between TGD-related stigma and HIV prevention clinical services.

Conclusions: Future interventions that aim to improve HIV prevention clinical services among TGD adults should consider the impact of TGD-related stigma on participants' substance use and sexual risk behaviors. These efforts require that healthcare organizations and community organizations make a deliberate investment in the reach and success of interventions and programs.
