



## 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

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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](#).

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### Relevant Funding Announcements

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[PAS-23-172](#): HIV Prevention and Alcohol (R34 Clinical Trials Optional)

[PAS-23-173](#): HIV Prevention and Alcohol (R01 Clinical Trials Optional)

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

## New Publications

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### **Study protocol for an efficacy trial of the "PrEP for Health" intervention to increase HIV PrEP use among people who inject drugs.** [BMC Public Health](#). 2023 Mar

17;23(1):513. PMCID: PMC10021034.

Bazzi AR, Bordeu M, Baumgartner K, Sproesser DM, Bositis CM, Krakower DS, Mimiaga MJ, **Biello KB**.

**Background:** HIV incidence has recently increased among people who inject drugs (PWID) across the United States, with outbreaks occurring in states with long-standing syringe service programs (SSPs) including Massachusetts (MA). Antiretroviral pre-exposure prophylaxis (PrEP) is an evidence-based HIV prevention strategy recommended for PWID, but uptake in this marginalized population is extraordinarily low.

**Methods:** We describe the design and procedures for a National Institute on Drug Abuse (NIDA)-funded (R01) randomized controlled trial (RCT) testing the efficacy of "PrEP for Health," a multicomponent behavioral intervention to increase PrEP uptake, adherence, and persistence among HIV-negative PWID attending SSPs in two areas of the U.S. Northeast that are heavily affected by injection-related HIV transmission. Participants are equally randomized to receive the "PrEP for Health" intervention (involving individually tailored HIV and PrEP education, motivational interviewing, problem-solving skills and planning, and ongoing navigation support) or an enhanced standard of care (eSOC) control condition involving a brief educational video on the utility of PrEP for HIV prevention. Co-primary outcomes are PrEP uptake (using medical/pharmacy records) and adherence (using tenofovir quantification in hair samples); a secondary outcome is PrEP persistence (using medical/pharmacy records) over 12 months. Major assessments occur at baseline, 1-, 3-, 6-, and 12-month follow-up visits. Planned analyses will examine intervention efficacy, specific hypothesized conceptual mediators of the intervention effect (e.g., self-perceived HIV risk; PrEP knowledge, interest in use, motivation, and behavioral skills) and epidemiologically linked moderators (e.g., age; gender; condomless vaginal or anal sex).

**Discussion:** Findings from our extensive preliminary research with the study population revealed that a multicomponent, theory-based intervention targeting PrEP knowledge, motivation, self-efficacy, behavioral skills, and structural barriers to PrEP access is urgently needed for PWID who are at risk of HIV acquisition. We also learned that SSPs represent a highly acceptable service setting for delivering such interventions. In this study, we are evaluating the efficacy of the "PrEP for Health" intervention. If efficacious, findings from our implementation evaluation could help guide its dissemination to diverse SSPs and possibly other community-based settings accessed by this population.

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### **Impact of alcohol use disorder severity on human immunodeficiency virus (HIV) viral suppression and CD4 count in three international cohorts of people with HIV.**

[Alcohol Clin Exp Res](#). 2023 Feb 17. Epub ahead of print.

Bertholet N, Saitz R, Hahn JA, Heeren TC, Emenyonu NI, Freiberg M, Winter MR, **Kim TW**, Magane K, Lloyd-Travaglini C, Fatch R, Bryant K, Forman LS, Rateau L, Blokhina E, Muyindike WR, Gnatenko N, **Samet JH**.

**Background:** Alcohol use has been linked to worse human immunodeficiency virus (HIV) immunologic/virologic outcomes, yet few studies have explored the effects of alcohol use disorder (AUD). This study assessed whether AUD severity is associated with HIV viral suppression and CD4 count in the three cohorts of the Uganda Russia Boston Alcohol Network for Alcohol Research Collaboration on HIV/AIDS (URBAN ARCH) Consortium.

**Methods:** People with HIV (PWH) in Uganda (n = 301), Russia (n = 400), and Boston (n = 251), selected in-part based on their alcohol use, were included in analyses. Logistic and linear regressions were used to assess the cross-sectional associations between AUD severity (number of DSM-5 diagnostic criteria) and (1) HIV viral suppression, and (2) CD4 count (cells/mm<sup>3</sup>) adjusting for covariates. Analyses were conducted separately by site.

**Results:** The proportion of females was 51% (Uganda), 34% (Russia), and 33% (Boston); mean age (SD) was 40.7 (9.6), 38.6 (6.3), and 52.1 (10.5), respectively. All participants in Uganda and all but 27% in Russia and 5% in Boston were on antiretroviral therapy. In Uganda, 32% met criteria for AUD, 92% in Russia, and 43% in Boston. The mean (SD) number of AUD criteria was 1.6 (2.4) in Uganda, 5.6 (3.3) in Russia, and 2.4 (3.1) in Boston. Most participants had HIV viral suppression (Uganda 92%, Russia 57%, Boston 87%); median (IQR) CD4 count was 673 (506, 866), 351 (201, 542), and 591 (387, 881), respectively. In adjusted models, there were no associations between AUD severity and HIV viral suppression: adjusted odds ratios (AOR) (95%CI) per 1 additional AUD criterion in Uganda was 1.08 (0.87, 1.33); Russia 0.98 (0.92, 1.04); and Boston 0.95 (0.84, 1.08) or CD4 count: mean difference (95%CI) per 1 additional criterion: 5.78 (-7.47, 19.03), -3.23 (-10.91, 4.44), and -8.18 (-24.72, 8.35), respectively.

**Conclusions:** In three cohorts of PWH, AUD severity was not associated with HIV viral suppression or CD4 count. PWH with AUD in the current era of antiretroviral therapy can achieve virologic control.

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**Polysubstance use patterns associated with HIV disease severity among those with substance use disorders: A latent class analysis.** [J Stud Alcohol Drugs](#). 2023

Jan;84(1):79-88. PMCID: PMC9948140.

Bertholet N, Winter MR, Heeren T, Walley AY, Saitz R.

**Objective:** Polysubstance use is common among people with HIV infection (PWH) and with substance use disorder (SUD), but its effects are understudied. We aimed to identify polysubstance use patterns over time and assess their associations with HIV disease severity.

**Method:** In 233 PWH with current or past SUD, latent class analysis identified polysubstance use patterns based on the Alcohol Use Disorders Identification Test-Consumption and past-30-day use of cannabis, cocaine, opioids, and tranquilizers at baseline. We categorized changes in use patterns and tested associations between those changes and CD4 count and HIV viral suppression at 12 months in linear and logistic regressions.

**Results:** Three patterns were identified at baseline: 18% did not use any substance (NONE--a priori defined); 63% used mostly cannabis and alcohol (CA); and 19% used opioids along with other drugs, including cocaine, tranquilizers, cannabis, and alcohol (MULTI). At 12 months, 40% moved from a high to a lower substance use class (MULTI to CA, either to NONE) or remained as NONE, 43% were in CA both times and 17% increased (NONE to CA, either to MULTI) or remained as MULTI. The adjusted mean CD4 count (for baseline covariates and baseline CD4 count) was significantly lower among participants increasing or remaining in MULTI (523, 95% CI [448, 598], cells/mm<sup>3</sup>) compared with those who decreased/abstained throughout (607, 95% CI [552, 663],  $p = .02$ ). No significant difference was observed for HIV viral suppression.

**Conclusions:** We identified distinct polysubstance use patterns among PWH with SUD: cannabis/alcohol and opioids with alcohol and other drugs. Changes over time toward fewer substances/no use were associated with lower HIV disease severity based on CD4 count but not based on HIV viral suppression.

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**App-delivered mindfulness training to reduce anxiety in people with HIV who smoke: A one-armed feasibility trial.** [Int J Environ Res Public Health](#). 2023 Mar

9;20(6):4826. PMCID: PMC10048883.

Cioe PA, Sokolovsky AW, Brewer JA, Kahler CW.

**Introduction:** People with HIV (PWH) who smoke have reported that managing anxiety is a barrier to making a quit attempt and maintaining abstinence post-quit. This study examined the feasibility and acceptability of an app-based mindfulness intervention, Unwinding Anxiety, to reduce anxiety prior to a quit attempt in PWH who were not planning to quit in the next 30 days.

**Methods:** Sixteen PWH (mean age 51.5 [SD = 13.2]; mean cigarettes per day 11.4 [SD = 5.4]) were enrolled and followed for eight weeks. A smartphone-based app with 30 modules designed to reduce anxiety was introduced at baseline; participants were encouraged to complete one module daily for four weeks. Symptoms of anxiety and readiness to quit smoking were measured at baseline and weeks 4 and 8. The mean

number of modules completed, session attendance, and number of study completers were examined. Generalized estimating equations (GEE) were used to examine changes in self-reported anxiety and readiness to quit at baseline, week 4, and week 8. A brief qualitative interview was conducted at week 4 to explore the acceptability of the app.

**Results:** Feasibility was high, with 93% of participants completing the study. The mean number of study sessions completed was 2.7 (SD = 0.59), and the mean number of modules completed was 16.0 (SD 16.8). Anxiety was high at baseline (M = 14.4, SD = 3.9), but lower at week 4 ( $b = -5.5$ ; CI: [-9.4, -1.7];  $p = 0.004$ ) and week 8 ( $b = -5.1$ ; CI: [-8.8, -1.3];  $p = 0.008$ ), and stable between weeks 4 and 8 ( $b = 0.48$ ; CI: [-2.0, 3.0];  $p = 0.706$ ). Readiness to quit significantly increased from baseline M = 5.5 (SD = 1.6) to week 4 ( $b = 0.56$ ; CI: [0.20, 0.91];  $p = 0.002$ ) but was not significantly different from baseline at week 8 ( $b = 0.34$ ; CI: [-0.30, 1.0];  $p = 0.30$ ). Ad-hoc moderation analyses found that anxiety had a small significantly positive association with readiness to quit at baseline (main effect:  $b = 0.10$ ; SE = 0.03;  $p < 0.001$ ) and significantly attenuated the increase in readiness to quit observed at week 4 (anxiety by week 4 interaction:  $b = -0.08$ ; SE = 0.03;  $p = 0.009$ ).

**Conclusions:** App-based mindfulness training appears to be feasible and acceptable for PWH who smoke and report baseline anxiety. At week 4, anxiety was reduced and readiness to quit was increased, perhaps a key time point for a smoking cessation attempt.

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**"I've been 95% safe": Perspectives on HIV pre-exposure prophylaxis at a drug detoxification center: A qualitative study.** [AIDS Care](#). 2023 Apr;35(4):461-465. PMID: PMC9343469.

Massey ESG, Bazzi AR, Sian CR, Gebel CM, Bernstein JA, **Assoumou SA**.

Pre-exposure prophylaxis (PrEP) decreases human immunodeficiency virus (HIV) acquisition among persons who inject drugs (PWID); however, its uptake has been suboptimal. We explored HIV risk perceptions and PrEP interest among drug detoxification center patients in the context of the ongoing opioid overdose epidemic. We conducted in-depth interviews of patients ( $n = 24$ ) and professional key informants ( $n = 10$  physicians, case managers, nurses, and harm reduction educators), and thematic analysis of coded data. The mean age of participants (patients) was 37 years; 54% identified as male and 67% as White. Although 71% reported injecting drugs and 62% had condomless sex in the past 6 months, participants had mixed HIV risk perceptions, and some viewed PrEP as an undesirable indicator of elevated HIV risk. Nevertheless, many participants viewed drug detoxification as a first step towards embarking on a "healthier lifestyle," with some narratives identifying opportunities for delivering PrEP information and services in this setting. Opportunities exist to expand PrEP at drug detoxification centers, but initiatives are needed to educate patients and staff on indications and benefits of this prevention tool. Interventions are also needed to determine the best strategies for implementing PrEP adoption in this setting.

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**Peer recovery coaching for comprehensive HIV, hepatitis C, and opioid use disorder management: The CHORUS pilot study.** [Drug Alcohol Depend Rep](#). 2023 Apr 5;7:100156. PMID: PMC10126838.

Martin AK, Perryman T, Bernstein JA, Taylor JL, Cruz R, Muroff J, **Samet JH, Assoumou SA**.

**Introduction:** Amidst a surge in HIV and hepatitis C virus (HCV) infections in persons who use drugs, medications that effectively prevent HIV and treat opioid use disorder and HCV remain underutilized.

**Methods:** We developed a 6-month peer recovery coaching intervention (brief motivational interviewing followed by weekly virtual or in-person coaching) and collected data on uptake of medications for opioid use disorder (MOUD), HIV pre-exposure prophylaxis (PrEP), and HCV treatment. The primary outcomes were intervention acceptability and feasibility.

**Results:** At a Boston substance use disorder bridge clinic, we enrolled 31 HIV-negative patients who used opioids. Participants reported high intervention satisfaction at 6 months (95% "satisfied" or "very satisfied"). At study completion, 48% of the participants were on MOUD, 43% who met CDC guidelines were on PrEP, and 22% with HCV were engaged



with treatment.

**Conclusions:** A peer recovery coaching intervention is feasible and acceptable, with positive preliminary findings regarding MOUD, PrEP and HCV treatment uptake.

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**Research and engagement considerations for alcohol use telehealth services within HIV care: A qualitative exploration in federally qualified health centers.** [AIDS Care](#).

2023 Apr 11:1-10. Epub ahead of print.

Scott K, Guy AA, Zelaya DG, Surace A, Elwy AR, Keuroghlian AS, Mayer KH, **Monti PM, Kahler CW.**

The prevalence of alcohol misuse is high among people with HIV (PWH); however, access to and utilization of evidence-based alcohol misuse interventions remain limited.

Telehealth is one treatment approach with the potential for enhancing substance use disorder treatment utilization for PWH served by Federally Qualified Health Centers (FQHCs). However, questions remain regarding barriers to alcohol-focused telehealth service integration and telehealth research in FQHCs. This study employed qualitative methods, guided by the Dynamic Sustainability Framework, to evaluate barriers and cultural factors impacting FQHC telehealth integration. Eighteen qualitative interviews were completed with staff and leaders across four FQHCs. Interviews were analyzed using directed content analysis, and codes were organized into a priori and emergent themes. Key themes included the presence of common workflows for referring clients to substance use disorder treatment; existing research workflows and preferences for active project staff involvement; telehealth barriers including exacerbation of healthcare disparities and high provider turnover; and the importance of cultural humility and telehealth adaptations for sexual, gender, racial and ethnic minority clients. Findings from this study will inform the development of an alcohol-focused telehealth implementation strategy for a Hybrid Type 1 implementation effectiveness trial to enhance FQHC substance use disorder treatment.

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**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](#). 2023 Apr 1;92(4):300-309. PMID:

PMC9974738.

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 that contributes to elevated substance use and HIV sexual risk behaviors. Despite higher burdens of substance use and HIV compared to cisgender adults, TGD individuals may be less likely to engage in health care 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 (ie, condom use, sex work, and multiple partners), and receiving gender-affirming hormone therapy mediate any observed association between TGD-related stigma and utilization of HIV prevention clinical services (ie, HIV prevention programs, PrEP use, and 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 = 0.05, 0.17;  $P = 0.03$  and  $\beta = 0.26$ ; 95% CI = 0.14 to 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 health care organizations and community organizations make a deliberate investment in the reach and success of interventions and programs.

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**Strategies used to manage chronic pain in HIV-disease: Comparing persons prescribed opioids versus persons not receiving opioids.** [AIDS Behav](#). 2023 Mar 22.

Chronic pain is common in people living with HIV (PLWH), causes substantial disability and is associated with limitations in daily activities. Opioids are commonly prescribed for pain treatment among PLWH, but evidence of sustained efficacy is mixed. There is little information available on how PLWH who have chronic pain use multimodal strategies in pain management. The current cross-sectional study examined background characteristics, self-reported pain, and the use of other pain treatments among 187 PLWH with chronic pain and depressive symptoms who were and were not prescribed opioids. Approximately 20.9% of participants reported using prescription opioids at the time of the study interview. These individuals were significantly more likely to report having engaged in physical therapy or stretching, strengthening or aerobic exercises in the previous 3 months, recent benzodiazepine use, and receiving disability payments. There were no significant differences in pain characteristics (pain-related interference, average pain severity, and worst pain severity) between the two groups. Those not prescribed opioids were more likely to report better concurrent physical functioning and general health, and fewer physical role limitations, but higher depression symptom severity. Our findings suggest that many PLWH with chronic pain and depressive symptoms express high levels of pain with deficits in physical function or quality of life despite their use of opioids. The high rate of co-use of opioids and benzodiazepines (30.8%) is a concern because it may increase risk of overdose. An integrated care approach that includes a variety of effective non-pharmacologic treatment strategies such as physical therapy may be beneficial in reducing the reliance on opioids for pain management.