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!

Visit the SURC webpage

Upcoming Event

The Siyaphambili Substance Use Study team, invites you to an upcoming webinar, *Implementation Research for Addressing Harmful Substance Use Among Female Sex Workers in South Africa: Learning Across Contexts*, on **March 26 from 12-1 PM ET.**

This webinar will present critical findings from a study examining substance use among female sex workers living with HIV in South Africa, and explore how these findings inform implementation strategies for vulnerable populations domestically and internationally. This informative session will feature a presentation by the research team, current NIH funding landscape and priorities, followed by a Q&A segment where participants can share their perspectives and reflections. Register **here**.

Funding Announcements

PAR-24-329: Development and Testing of Novel Interventions to Improve HIV Prevention, Treatment, and Program Implementation for People Who Use Substances (R34 Clinical Trial Required)

RFA-DA-26-055: Accelerating the Pace of Substance Use Research Using Existing Data (R01 Clinical Trial Not Allowed)

RFA-DA-26-009: Mitochondrial-associated Mechanisms of Neuropathological and Immunodeficient Aging in the Context of HIV and SUD (R01 Clinical Trials Not Allowed)

PAS-25-208: HIV Prevention and Alcohol (R01 Clinical Trials Optional)

RFA-DA-25-024: High Priority HIV and Substance Use Research (R01 Clinical Trial Optional)

PAR-26-092: Pilot and Feasibility Studies in Preparation for Substance Use and HIV Prevention Intervention and Services Research Trials (Forecasted Opportunity)

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

Subjective Social Status in Relation to the Associations Between Internalized Stigmas and Missed HIV Appointments Among MSM Who Use Substances. SSM Ment Health. 2025 Dec;8:100477. PMCID: PMC12802859.
Batchelder AW, Foley JD, Burgess C, Mairena O, Liu J, Mayer KH.

Men who have sex with men (MSM) living with HIV who use substances often report internalized stigma associated with aspects of their identities and behaviors, which can negatively influence health behaviors including engagement in HIV care. Given the devaluing nature of stigma, one's perception of their hierarchical rank in society may account for the relationships between internalized stigma and suboptimal engagement in HIV care. This study investigated relationships between internalized stigmas (i.e., linked to HIV-status, sexual orientation, and substance use), subjective social status in relation to one's community and the U.S., and missed HIV appointments among 143 MSM living with HIV who use substances. In bivariate regression models, internalized HIV stigma related to disclosure (*OR* = 1.46; confidence interval [CI]: 1.02, 2.09), and substance use stigma (*OR* = 1.07; CI:1.02, 1.12) were associated with greater odds of missing HIV appointments. Self perception of higher social status in one's community (*OR* = 0.81; CI: 0.69, 0.96) and the U.S. (*OR*= 0.80; CI: 0.69, 0.94) were associated with lower odds of missing HIV appointments. Indirect effects models demonstrated that subjective social status in the U.S., but not in one's community, explained variance in the relationship between internalized HIV and sexual orientation stigmas and missing HIV appointments. Results suggest that perceptions of social status in the U.S. may partially account for the associations between internalized HIV and sexual orientation-related stigmas and suboptimal engagement in HIV care, potentially related to the discriminatory policies and practices across the U.S., in contrast to more liberal states such as where this study took place. Efforts, including policies, are needed to stop the devaluation of people with stigmatized identities nationally, including those living with HIV and those who identify as sexual minorities, to improve the health and well-being of all people.

Preloading with Nicotine Replacement Therapy in People With HIV Who Smoke: A Pilot Randomized Controlled Trial. Nicotine Tob Res. 2025 Nov 23;27(12):2322-2327.
Cioe PA, Stang GS, Azam D, Piper ME, **Kahler CW**.

Introduction: Smoking cessation rates in people with HIV (PWH) are lower than in the general population, even when evidence-based treatments are used. This 16-week study examined the feasibility, acceptability, and preliminary efficacy of preloading with nicotine replacement therapy (NRT) in PWH to improve cessation outcomes.
Methods: Forty-nine participants were randomized to nicotine patch preloading (NRT-P) for 3 weeks prior to the target quit date (TQD) or standard treatment with no preloading (ST). All participants received combination NRT for 8 weeks at TQD, with five sessions of behavioral counseling. At week 16, biochemically verified 7-day point-prevalence abstinence was assessed.
Results: Mean preloading patch days was 19.7 (out of 21 days; SD 2.7), indicating excellent acceptability. Mean patch days post-TQD (out of 56 days) was 47.4 (SD = 13.2)

in NRT-P and 32.7 (SD = 21.8) in ST (t = -2.48, p = .01). At week 16 there was no group difference in week 16 point-prevalence abstinence, but NRT-P participants smoked significantly fewer cigarettes per week (10.1 [SD 14.7] vs. 47.2 [SD 67.6]) and had lower carbon monoxide levels (5.22 [SD 3.6] vs. 10.89 [SD 11.3], p = .04) compared to ST participants. Cessation self-efficacy increased significantly over time in the NRT-P condition only.
Conclusions: NRT preloading is feasible and acceptable among PWH, with excellent adherence to preloading, and benefits observed relative to ST following TQD in patch adherence, self-efficacy, cigarettes smoked per day, and carbon monoxide levels. The lack of effect of preloading on smoking abstinence suggests further study is needed.
Implications: Preloading with nicotine patch among PWH who smoke prior to the TQD may be an effective means of improving adherence to smoking cessation medications both pre- and post-quit. By increasing self-efficacy for quitting and lowering cigarette dependence, preloading may improve cessation rates and help reduce the burden of tobacco-related disease among PWH. Further research is needed.

Complexity of Adherence Challenges: Understanding Syndemic Factors Affecting HIV Treatment Adherence during Treatment Initiation in Cape Town, South Africa. AIDS Behav. 2025 Dec 5.
Kaiser JL, Trowbridge E, Vian T, Haberer JE, Paudel R, DeMaria J, Orrell C, Jennings L, **Gifford AL**, Halim N, Berkowitz N, MacLeod WB, Sabin LL.

People living with HIV and beginning antiretroviral therapy (ART) often struggle with medication adherence and attending appointments due to multi-level challenges such as depression symptoms, substance use, stigma and disclosure, food insecurity, health system challenges, transportation challenges, and gender inequity. The SUSTAIN trial seeks to improve initiation adherence through multiple monitoring and support interventions in three clinics in Mitchells Plain township, Cape Town, South Africa. We qualitatively explored the multi-level challenges impacting adherence at the individual, interpersonal, and structural levels among 60 study participants within the first six months after initiation on ART. The in-depth interview sample was selected purposively based on participant experiences with at least one of these factors reported through a baseline survey, gender, and age. We conducted a content analysis and utilized syndemic theory to understand the synergistic effects of multiple adherence challenges. To manage their HIV diagnosis, participants described positive and negative coping mechanisms, including how substance use affected adherence particularly on big event days (e.g., birthdays, holidays, or funerals). Participants described fears of stigma motivat decisions on disclosure of their HIV status and decreased potential social support, possibly reducing motivation to adhere to ART. Gender inequity reinforced experiences with and perceptions of stigma and disclosure. Participants indicated that food insecurity resulted in feelings of shame when associated with perceived larger appetites due to ART use and with lack of employment. Participants described both positive and negative ways the health system impacted their adherence and retention in care, citing information provided by clinic staff, clinician attitudes, and clinic operations. Misunderstandings regarding the strict timing of ART dose-taking (often from lack of clear information or counselling by clinicians) meant participants often had limited competence to make decisions about their dosing schedule and how to best integrate treatment into their daily lives. Participants described a notable fear of commuting to and from clinics due to dangerous and difficult paths on which muggings occurred frequently; women were at particular risk of violence. Often, participants mentioned multiple factors simultaneously affecting adherence, with additive or synergistic effects. Syndemic factors affecting ART adherence exist across multiple levels. Enhanced adherence counseling, designed as a behavior change intervention, might help PLWH cope with individual adherence barriers and support strategizing about ways to mitigate or overcome structural barriers. Continued efforts by government and implementers to address health system, gender inequity, and security challenges could further support ART adherence.

Pre-Exposure Prophylaxis (PrEP) and Medications for Opioid Use Disorder for Persons Who Inject Drugs: The CHORUS+ Randomized Controlled Trial Study

Protocol. Addict Sci Clin Pract. 2025 Dec 25;21(1):17. PMCID: PMC12849554.
Miller SE, Dukes KA, Damato-MacPherson C, Psaros C, Scott NA, Taylor JL, Muroff J, Winter MR, Skiba LE, Lugo H, Cruz R, Ruiz-Mercado G, Crawford ND, Mayer KH, **Assoumou SA**.

Background: Human immunodeficiency virus (HIV) cases among people who inject drugs increased during the US overdose crisis. Although HIV pre-exposure prophylaxis (PrEP) decreases HIV acquisition, and medications for opioid use disorder (MOUD) reduce overdose deaths, uptake remains suboptimal. The CHORUS + study will test the efficacy of a comprehensive peer recovery coaching intervention to increase PrEP and MOUD initiation and adherence.
Methods: This two-arm RCT will enroll 284 people who inject opioids (PWIO) and are negative for HIV from two sites. Participants randomized to the CHORUS + intervention will receive a study smartphone, motivational interviewing sessions, assistance connecting to PrEP and/or MOUD, and support to access resources addressing social needs such as employment and housing. We will also incorporate adapted 'Life-Steps for PrEP' modules to increase adherence. The control arm will receive information on local organizations with access to PrEP and MOUD. Participants will complete assessments at baseline, 1-, 3-, 6-, and 12-month visits. The primary outcome is adherence to HIV PrEP, assessed by tenofovir-diphosphate drug levels at 6-months post enrollment. Secondary outcomes include PrEP adherence assessed at 3- and 12-months, measured by drug levels (3-months), prescription refills, and self-report; and MOUD receipt at 3-, 6-, and 12-months, measured by prescription refills, self-report, and urine toxicology. The primary analysis will employ intent-to-treat logistic regression to assess differences in adherence between treatment arms, adjusting for stratification factors including site, race and sex assigned at birth. We will analyze secondary outcomes using similar methods. We will use multilevel growth curve modeling to evaluate changes in adherence over time by treatment group, incorporating random intercepts and slopes to account for individual trajectories. We will use exploratory multilevel structural equation modeling to assess mediators including HIV risk perception and PrEP/MOUD knowledge to understand pathways that may influence adherence.
Discussion: The CHORUS + intervention integrates a novel, theory-based, peer-delivered, smartphone-supported approach to address HIV prevention and opioid use disorder, while tackling social and structural barriers to care. Findings will inform strategies for linking PWIO to rapid HIV prevention and substance use treatment.

Mediation Effects of Biobehavioral Factors in a Trial of Pharmacotherapy and Intensive Cessation Counseling for People with HIV Who Smoke Cigarettes in Nairobi, Kenya. AIDS Behav. 2025 Dec 10.
Omanya AA, Shuter J, Koech E, Ojoo S, Potts W, Li L, **Kahler CW**, Himelhoch SS.

There is growing recognition of the important health risks of tobacco use in people with HIV (PWH). Multiple randomized controlled trials have tested cessation treatments in this population, but little is known about factors that mediate successful quitting. We conducted a randomized, placebo-controlled 2 × 2 factorial design trial of a behavioral intervention (Positively Smoke Free [PSF] one-on-one counseling) vs. brief advice to quit ± bupropion vs. placebo in PWH who smoked cigarettes in Nairobi, Kenya. Abstinence from cigarettes was assessed by self-report and exhaled carbon monoxide (ECO). We conducted pre-planned analyses of putative mediators of the effects of bupropion (i.e. craving, withdrawal, negative affect) and of PSF counseling (i.e. abstinence self-efficacy, decisional balance, and loneliness) at 12-weeks on biochemically-confirmed abstinence at 36-weeks. 269 participants were included in the final analytic cohort (mean age = 42.7 years, 70.3% male, smoking a mean of 10.6 cigarettes per day). The biochemically verified abstinence rate at 36-weeks was 24.2%. PSF counseling increased abstinence self-efficacy and reduced loneliness significantly more than brief advice to quit at 12-weeks. Mediation analyses suggested a mediating effect of change in self-efficacy at 12-weeks in the relationship of PSF to abstinence at 36-weeks. None of the putative mediators demonstrated a significant mediation effect of bupropion on quitting. These results indicate that self-efficacy was one mechanism through which PSF counseling, but

not bupropion, increased smoking abstinence among PWH who smoked cigarettes in Nairobi, Kenya.

Sex Differences in Beneficial and Pathogenic Bacteria in People with HIV (PWH) with a History of Heavy Alcohol Drinking. Front Microbiol. 2025 Nov 21;16:1632949. PMCID: PMC12679886.
Rao AV, Ghare SS, Gautam V, Hoffman KL, Petrosino J, **So-Armah K**, **Samet JH**, Patts GJ, Cheng DM, Blokhina E, Krupitsky EM, Lioznov D, Zvartau E, McClain CJ, Tindle H, Freiberg MS, Barve SS.

Background: HIV-1 infection and hazardous levels of alcohol consumption have been independently linked to gut dysbiosis affecting beneficial butyrate-producing bacteria. However, sex-based differences in the composition and function of gut microbiome of People With HIV (PWH) with a history of heavy alcohol drinking remain undetermined, which is the focus of this study.
Methods: Cross-sectional study examining structural and functional features of the gut microbiome in PWH between men and women with a history of hazardous alcohol drinking recruited at St. Petersburg, Russia. 16S rDNA sequencing information was used for metataxonomic, Phylogenetic Investigation of Communities by Reconstruction of Unobserved States (PICRUSt2) and Linear Discriminant Analysis Effect Size (LEfSe) analyses. Group-wise comparisons were done using Mann-Whitney *U*-test. Further, linear and logistic regression models were used to evaluate the association between sex and measures of gut microbial dysbiosis and Firmicutes/Bacteroidota (F/B) ratio, respectively. Data were adjusted for confounding covariates particularly, HIV-viral load, Anti-retroviral Therapy (ART) and alcohol usage.
Results: Metataxonomic analysis demonstrated that women depicted significantly higher microbial diversity (Operational Taxonomic Units, OTUs and Shannon Index), higher percent relative abundance (%RA) of *Firmicutes*, lower %RA of *Bacteroidota* and higher F/B ratio. Importantly, logistic regression revealed that women had twice the odds of having F/B ratio > 1. Notably, women demonstrated significantly higher %RA of butyrate-producing bacterial families, i.e., *Lachnospiraceae, Oscillospiraceae, Rikenellaceae* and *Marinifilaceae* and genera. Correspondingly, significantly greater expression of bacterial genes involved in butyrate synthesis in women was demonstrated by PICRUSt2 analysis. Additionally, women depicted lower %RA of pathobiont, *Prevotellaceae* particularly, *Prevotella_9* genus.
Conclusion: Overall, we observed significant sex-based differences in the relative abundances of beneficial bacterial communities such as butyrate producers and potential pathogenic Prevotella community in the gut microbiome of PWH with a history of heavy alcohol consumption. The observed sex-based differences are clinically relevant and could inform therapeutic strategies with evidence-based probiotics.

Assessing the Impact of Nicotinic Partial Agonists Compared to NRT on Opioid and Cigarette Use: A Secondary Analysis Investigating Treatment Outcomes for Co-Occurring Nicotine and Opioid Use. J Subst Use Addict Treat. 2026 Jan 18;184:209904.
Rich ZC, Tindle HA, Cheng DM, **Stein MD**, Gnatienko N, Bendiks S, Forman L, Patts GJ, Krupitsky E, Freiberg MS, **Samet JH**.

Introduction: Cigarette and opioid use are two leading causes of preventable death and disability in the United States and are often comorbid. Nicotinic partial agonists, such as varenicline and cytisine, are considered highly effective for Nicotine Use Disorder in the general population. However, their efficacy and safety in smokers who use opioids remain unclear, with concerns about reduced efficacy or increased opioid use. We evaluated the impact of nicotinic agonists compared to nicotine replacement therapy (NRT) on opioid and cigarette use.
Methods: We conducted a secondary analysis of the St PETER HIV study, a randomized, double-blinded, placebo-controlled trial of 400 HIV-positive individuals recruited from July 2017 to December 2020 at HIV care sites in St. Petersburg, Russia. Participants (daily smokers with risky alcohol use) were randomized to varenicline, cytisine, or NRT. Our

analysis focused on the 97 participants who reported opioid use at baseline. Logistic regression assessed the relationship between treatment arms and our primary outcome of self-reported opioid use. Hochberg-adjusted p-values accounted for multiple comparisons.
Results: The 97 St. PETER HIV participants with baseline opioid use exhibited significant differences from non-opioid users: higher rates of HCV infection; lower CD4 counts; and higher alcohol consumption and smoking rate. Among this opioid use subgroup, there was no significant difference in self-reported opioid use between participants randomized to nicotinic partial agonists and those randomized to NRT at 1, 3, 6 or 12 months.
Conclusions: Nicotinic partial agonists do not significantly impact opioid use outcomes compared to NRT in persons who use opioids. Clinicians should consider these options as part of a treatment approach to address nicotine use in this population.

Cocaine Use, Unhealthy Alcohol Use, and Pain Interference among People with HIV. AIDS Behav. 2026 Jan 5.
Sheinin J, Brothers TD, **Stein MD**, Winter MR, Palfai TP, Magane KM, Bellamy S, Asbridge M, Kim TW.

Pain is prevalent among people with HIV (PWH), and many PWH who experience pain also use substances (illicit drug and/or unhealthy alcohol use). While cocaine use and cocaine and alcohol co-use are prevalent in this population, their effects on pain in PWH are unknown. This study aims to investigate the association of cocaine use and co-use of cocaine and alcohol with pain interference among PWH. We completed a secondary analysis of the Boston Alcohol Research Collaboration on HIV/AIDS (ARCH) study, a longitudinal cohort of PWH with a history of substance use. The outcome was pain interference (Brief Pain Inventory). Exposures were recent cocaine use (Addiction Severity Index) and recent unhealthy alcohol use (Timeline Follow Back). Generalized Estimating Equation (GEE) ordinal logistic regression models were employed, adjusted for demographic factors, illicit/non-medical opioid use and cannabis use. Among 251 participants, 22.3% reported unhealthy alcohol use only, 11.1% reported cocaine use only, and 13.2% reported use of both. Cocaine use was associated with greater pain interference (adjusted odds ratio [aOR]: 1.73, 95% confidence interval [CI]: 1.15-2.60), whether or not participants had unhealthy alcohol use (interaction term, p = 0.695). Participants reporting both cocaine and unhealthy alcohol use had greater pain interference than participants reporting neither (aOR: 2.27, 95%CI: 1.35-3.79). Cocaine use was associated with greater pain interference as was co-use of cocaine and unhealthy alcohol among PWH. Considering patterns of substance use can inform clinicians' conversations with PWH who may be using substances for pain management.

A Qualitative Examination of Peer Navigation for Smoking Cessation in People with HIV. Tob Prev Cessat. 2025 Dec 16;11. PMCID: PMC12707165.
Stang GS, Camacho B, Pinkston M, Tashima K, **Kahler CW**, **Cioe PA**.

Introduction: People with HIV (PWH) are disproportionately affected by cigarette use, with a 40-60% prevalence rate. They achieve relatively low cessation rates following traditional interventions and often confront compounded challenges related to social factors. HIV care services have integrated Peer Navigators (PNs) into clinical care for many years, but not in the context of smoking cessation. The purpose of this study was to describe the experiences of PWH on a novel smoking cessation intervention that integrated PNs as part of a pilot randomized controlled trial.
Methods: This qualitative examination was conducted among PWH who smoke cigarettes and who participated in a randomized controlled trial between June 2020 and 2021 in Providence, Rhode Island, USA. A PN, defined as a PWH who smoked daily and successfully quit, was trained to provide cessation resources, encourage readiness to quit, and provide social support for quitting. Participants were randomized to either PN or usual care. Twenty-three participants assigned to a PN completed a semi-structured, in-depth qualitative interview. Interviews were audio-recorded, transcribed verbatim, and analyzed using thematic analysis.
Results: Analysis revealed that participants valued the interaction with the PN and described feeling increased social support for quitting. They expressed that the use of

storytelling by the PN was linked to a sense of success, and that certain traits of the PN were perceived as salient. Interacting with a PN enforced a sense of accountability, and lead to feelings of enhanced self-efficacy.
Conclusions: Integrating PNs to increase support for quitting seems to be highly acceptable among PWH who smoke. The findings underscore the significance of the lived experience of the peer navigator and the provision of social support.

Competence to Consent and Willingness to Participate in Behavioral Trials Among a Mixed HIV Serostatus Sample of Young Gay and Bisexual Men Who Use Stimulants: A Mixed-Methods Study. Subst Use Misuse. 2026 Jan 18:1-10.
Valente PK, Fisher C, **Biello KB**, Mimiaga MJ, Rodriguez G, Ficks K, Brown B.

Introduction: Despite elevated need, young gay and bisexual men (YGBM) who use stimulants are underrepresented in research. Consent processes are essential for human subjects' protection, yet shortcomings in consent practices and their role in willingness to participate in research have been underexplored.
Methods: Between July 2024 and January 2025, we enrolled 115 YGBM who use stimulants and are at risk for HIV transmission/acquisition in an online survey assessing willingness to participate and competence to consent to participation in a hypothetical risk reduction trial. We used a mixed-methods approach to examine factors associated with willingness to participate in the hypothetical trial and consent competence and identify motivations to trial participations and shortcomings in competence to consent.
Results: Participants' mean age was 21.83 years and 53.1% identified as white. Most participants (76.8%) expressed willingness to participate in the hypothetical trial, driven by personal interest in research, altruism, and compensation. Barriers to participation included scheduling challenges and study risks, including confidentiality concerns. Willingness to participate was higher among younger individuals and those experiencing recent food insecurity ($p < 0.05$). Participants expressed inadequate comprehension of the experimental design of the trial and therapeutic misconception (i.e., the belief that the trial was primarily designed to benefit their health). Competence to consent was positively associated with health literacy and negatively associated with sensation seeking.
Discussion: When designing recruitment and retention strategies, researchers should help YGBM identify and navigate potential barriers to participation. Future studies should explore informed consent interventions that enhance participants' understanding of trial information.