Some HIV-infected patients who consume alcohol experience avoidable premature morbidity, mortality, and adverse HIV outcomes due to their drinking. Unhealthy alcohol use refers to alcohol consumption that spans at-risk drinking and DSM-5 alcohol use disorder (AUD).[1,2] In this proposal we expand the definition to include alcohol use among HIV-infected patients with medical conditions that can be adversely impacted by alcohol such as presence of a detectable HIV viral load, tobacco use disorder, liver fibrosis, untreated hepatitis C (HCV) infection, depression and prescription of psychoactive medications that interact with alcohol. Abstinence from alcohol is recommended for patients with AUD, untreated HCV, and liver fibrosis and recent research demonstrates increased mortality risk among HIV-infected patients who consume more than 30 drinks per month.[3] Counseling and medications are the mainstay of treatment for unhealthy alcohol use but are rarely offered or accepted in HIV clinical settings. Patients who come to these settings for routine medical care may be identified via screening but are not typically motivated to address their drinking nor are they aware of treatment efficacy. In addition, the effect of these treatments can be modest. In our ongoing **S**tarting **T**reatment for **E**thanol in **P**rimary care (**STEP**) Trials (AA0201795, See Significance and Preliminary Studies section), we have addressed the challenges of motivation and the modest impact of some interventions by integrating treatment into HIV clinics and using stepped care models that adapt the intensity of the intervention based on treatment response.[4] We now propose to expand our focus to address patients' limited awareness of the impact of alcohol on medical conditions[5,6] and add financial reinforcers for abstinence. Contingency management (CM) is a behavioral therapy in which tangible rewards are provided to individuals who use substances contingent on achieving goals such as abstinence.[7] CM has efficacy in decreasing use of a range of substances such as alcohol in uninfected populations.[7-12] It improves linkage to care, retention in care and antiretroviral (ART) adherence in HIV-infected patents.[13-17] CM has not been studied for unhealthy alcohol use in HIV-infected patients. Of note, over 50% of patients enrolled in the integrated arm of the **STEP** Trials have met criteria for "stepping up". Thus, for patients who do not respond to CM, it is important to evaluate the impact of "stepping" up treatments to include Addiction Psychiatrist Management (with alcohol pharmacotherapies as indicated) and Motivational Enhancement Therapy to harness internal motivation.

Biomarkers outcomes are useful in alcohol trials.[18] Discerning the benefit of alcohol treatment using CD4 count and HIV viral load can be difficult due to the potency of ART.[19-22] The VACS Index, which includes data on age, liver (FIB-4), kidney, hematologic function, HCV status, CD4 count and HIV viral load, is a validated biomarker that reflects overall health. It reflects the impact of abstinence among HIV-infected patients receiving addiction treatment, even when they enter such treatment with an undetectable HIV viral load.[23] A clinically meaningful difference is 5 points, translating to a 20% change in 5-year mortality risk.[24-26] Similarly, phosphatidylethanol (PEth), a biomarker easily collected via finger stick, has a specificity of 95-100% for alcohol exposure in the past 21 days and provides an objective assessment of response to alcohol treatment in HIV clinics.[27-29]

Building on our integrated care model and evidence of need for stepped care in the **STEP** Trials (See Significance section) we plan to determine the effectiveness of CM plus stepped care for unhealthy alcohol use in HIV-infected patients. Among HIV-infected patients with unhealthy alcohol use enrolled in the **F**inancial **I**ncentives, **R**andomization with **S**tepped **T**reatment (**FIRST)** trial our **specific aims** are:

Aim 1: To compare the efficacy of CM plus stepped care vs. treatment as usual (TAU) on alcohol abstinence as measured using PEth and alcohol consumption using Timeline Followback (TLFB).
Hypothesis 1a: CM plus stepped care will lead to a greater proportion of individuals with PEth documented abstinence.
Hypothesis 1b: CM plus stepped care will lead to fewer self-reported drinks per week by TLFB.

Aim 2: To compare the efficacy of CM plus stepped care vs. TAU on the VACS Index.
Hypothesis 2: CM plus stepped care will lead to a greater proportion of patients who experience at least a 5-point decrease in the VACS Index.

Aim 3 (Exploratory): Among patients with medical conditions adversely impacted by alcohol, to compare the impact of CM plus stepped care vs. TAU on measures including detectable HIV viral load, cotinine and anabasine (for smoking cessation), FIB-4, detectable HCV, depressive symptoms and use of psychoactive medications that interact with alcohol.

As part of **C**onsortium to improve **O**utcoMes in hiv/**A**ids, **A**lcohol, **A**ging, and multi-**S**ubstance use (COMpAAAS), the **FIRST** trial will provide novel data on the efficacy of CM plus stepped care for unhealthy alcohol use in HIV clinics and inform parallel COMpAAAS Observational and Operations Research projects.