

Influence of substance use on cardiovascular risk factors and disease among HIV-positive clinic patients in NYC: Findings from electronic medical record data

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Cardiovascular Disease and HIV

- Cardiovascular disease (CVD) contributes to morbidity and mortality among people living with HIV (PLWH).
- Coronary artery disease (CAD) is the most common type of CVD, killing more than 370,000 people annually (Kochanek et al., 2011).
- CAD outcomes and hospitalization rates have consistently shown to be significantly higher among people who are HIV-positive in comparison to HIV-negative people (Klein et al., 2002; Triant, 2012).

Cardiovascular Disease and HIV

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- With the advent of antiretroviral therapy, PLWH have a longer life expectancy and, are more likely to develop chronic conditions such as CAD (Freiberg & Kraemer, 2010; Triant, 2012).
- The WHO report projected HIV/AIDS and CAD as 2 of the top 3 leading causes of both mortality and disability-adjusted life-years globally in the year 2030 (Mathers & Loncar, 2006).

Alcohol and Drug-Use and HIV

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- Alcohol and drug-use (ADU) problems are highly prevalent among PLWH.
- More than 50% of PLWH report a history of substance use (Bing et al., 2001; Korthuis et al., 2008).
- ADU has been commonly identified as a factor related to poor health outcomes and HIV medication non-adherence.

CVD, ADU, and HIV

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- Prior research has focused on the association between drinking alcohol and CVD among people who do not have HIV.
- Very little is known about the impact of ADU problems on cardiovascular risk factors and disease among PLWH.
- The Veterans Aging Cohort Study found that increased prevalence of CVD was significantly associated with hazardous drinking and alcohol abuse or dependence among HIV-positive veterans as compared with site-matched HIV-negative veterans (Freiberg et al., 2010).

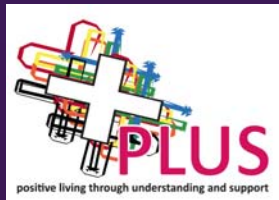
Current Study

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- Aim
 - To examine the influence of substance use problems on cardiovascular risk factors and disease among HIV-positive clinic patients in NYC

Comparative Effectiveness Trial: Improving HIV and Alcohol-Related Outcomes among HIV-Positive Persons in Clinic Settings

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Methods

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Retrospective cohort study

- Analyze electronic medical records (EMRs) of 5,584 HIV-positive patients who attended the Spencer Cox Center for Health in NYC in 2012.
- Examine the link between ADU problems and CVD events and risk factors.

Measures

- Records of both outpatient and inpatient diagnoses for substance abuse/dependence in the past year based on ICD-9 codes.
- History of CVD events and risk factors as documented in EMRs.

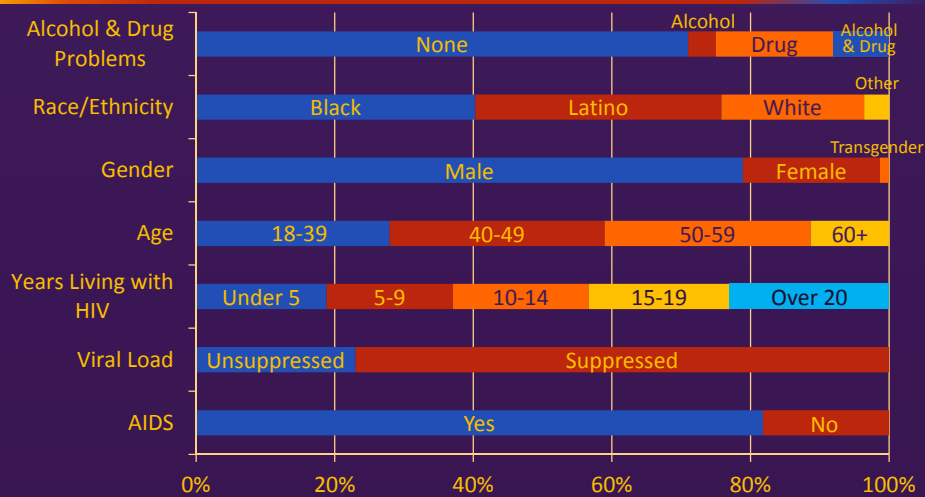
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Data Analysis

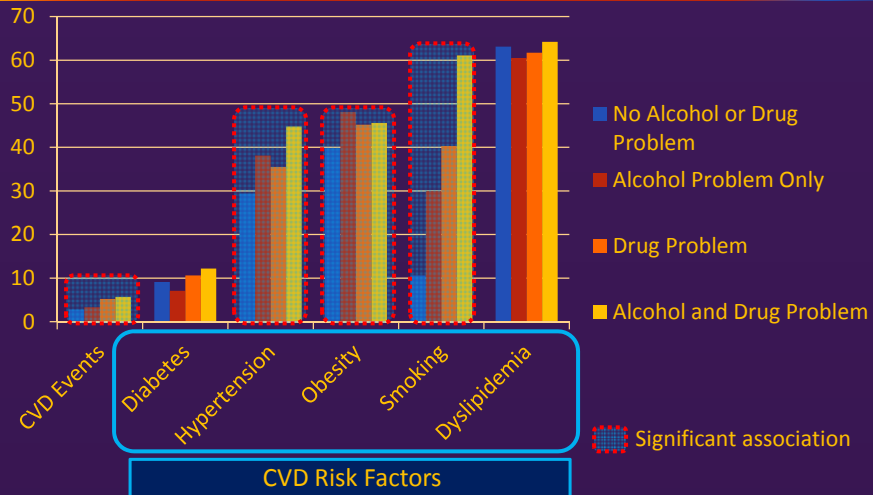
- Examine the link between ADU problems and CVD events and risk factors by comparing four groups:
 - No ADU problems
 - Alcohol problem only
 - Drug problem only
 - Alcohol and Drug problems
- Poisson regression was used to model the effect of having an ADU problem on the number of CVD events and risk factors, while adjusting for race/ethnicity, gender, age, years since HIV diagnosis, AIDS, and having a suppressed viral load.

Demographic and Clinical Characteristics (n = 5,584)



Prevalence of CVD Events and Risk Factors by ADU Problems

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Poisson Regression to Model the Effect of ADU Problems on the Rate of CVD Events and Risk Factors

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Table 3. Poisson Regression to Model the Effect of ADU Problems on the Rate of CVD Events and Risk Factors (N=5,584) †

	M	SE	Exp (B)	95% CI	p
No Alcohol or Drug Problem*	1.32	0.04	1.00		
Alcohol Problem	1.52	0.08	1.15	1.05-1.24	0.000
Drug Problem	1.58	0.06	1.19	1.14-1.25	0.000
Alcohol and Drug Problem	1.78	0.07	1.35	1.28-1.42	0.000

Note: Adjusted for race/ethnicity, gender, age, years since HIV diagnosis, AIDS, and viral load

*Reference group

†Wald Chi-square = 117.88, df = 3, $p < 0.001$

Summary of Findings

- Over a third of patients had an ADU diagnosis in their EMR:
 - Alcohol problem only: 210, 3.8%
 - Drug problem only: 943, 16.9%
 - Both and drug problems: 458, 8.2%
- 4% of patients had a CVD diagnosis
 - Both ADU and drug only patients had a documented CVD event compared to the no ADU problems and alcohol only groups
 - Patients with ADU problems also had unsuppressed viral loads, AIDS diagnosis, hypertension, and smoked compared to the other groups
 - After controlling for age, race, gender, time since HIV diagnosis, AIDS diagnosis, and viral load, the rate of CVD risk factors was greatest for the ADU group

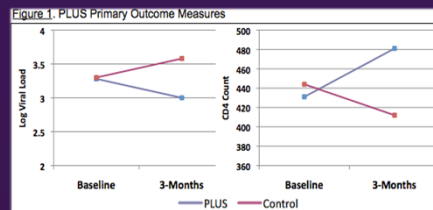
Implications

- HIV-positive patients with ADU problems have a higher rate of CVD events and related risk factors.
- Integrating substance use treatment into HIV care is critical to reduce CVD risk for a substantial number of people.
- Change in organizational level practices may lead to more regular screening of both alcohol and drug use problems.
 - In comparison to the WHO surveillance data with the prevalence of drug use disorders at 1.83% of the U.S. adult population compared with 5.48% for alcohol use disorders, our results suggests that these rates are substantially higher in this clinic sample with more drugs than alcohol problems pointing to the fact that drug use problems are more likely to be documented by providers.

Overview of Project PLUS

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- First behavioral intervention (and thus far only) for HIV-positive individuals with alcohol problems to demonstrate significant effects
Parsons JT, Golub SA, Rosof E, Holder C. Motivational interviewing and cognitive-behavioral intervention to improve HIV medication adherence among hazardous drinkers: A randomized controlled trial. JAIDS 2007;46(443-450).
- A viable approach to improve health outcomes for HIV-positive men and women, particularly for people of color
- Provides clinicians tools to respond to resistance, build motivation, and enhance confidence in the patient in reducing alcohol use and improving HAART adherence



The PLUS Intervention

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- Guided by the Information-Motivation-Behavioral Skills Model (IMB Model; Fisher & Fisher, 1993)
- Integrates two complimentary techniques to improve motivation and skills
 - Motivational Interviewing with personalized feedback
 - Cognitive Behavioral Skills Training
- Individual sessions aim to simultaneously improve adherence to HIV medication and reduce alcohol use (as originally designed) among HIV-positive men and women

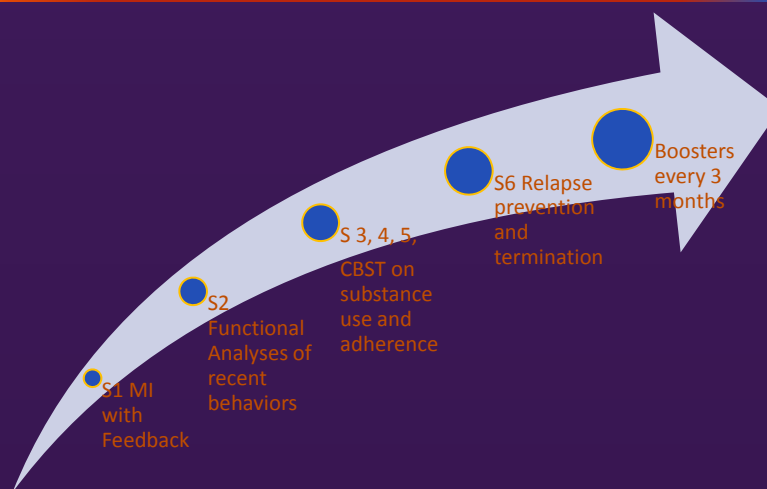
The PLUS Treatment Program

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- A structured 6-session program
- Session 1 Begins with MI to engage the client in a discussion of their drinking, drug use and medication adherence
- Sessions 2-5 continue with MI and transition into CBST when the client is ready to begin working on making changes
- Session 6 ends with a review of the treatment process, relapse and maintenance plan development, and a termination discussion
- Booster sessions to support the development of new effective behaviors, monitor maintenance of behavior change, and problem solve any difficulties in making or maintaining behavior changes
- Every client has unique needs and the PLUS treatment program is designed to be responsive to these needs as they are identified.

Outline of the PLUS Sessions

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PLUS Sessions

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- After session 1 (MI with feedback) and Session 2 (functional analysis) sessions 3,4,5 focus on MI with CBST
- Modules / content focus for sessions 3,4,5 based on functional analyses and agreed upon collaboratively with the client
- Booster sessions include brief feedback and can be tailored to specific client needs

Therapist chooses modules in collaboration with patient

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Alcohol/Drugs

- basic skills to avoid drinking/using
- moderated use
- managing cravings for alcohol/drugs
- managing thoughts about drinking/using
- drink/drug refusal skills

Adherence

- basic skills to avoid missing medication
- communication skills with providers
- managing thoughts about adherence
- managing side effects
- making time for yourself
- treatment as prevention

Next Steps for PLUS

- Comparative effectiveness trial to provide evidence on effectiveness
 - Clinical outcomes
 - Costs
- Trial conducted in the real world clinic settings
 - identified as key to advance HIV behavioral interventions

Future Directions

- Integrating motivational interviewing for HIV-positive patients to include adherence to CVD as well as HIV medications seems to be a promising solution towards improving the outcome of HIV and quality of life.
 - Effective patient-provider communication has the potential to address outcome disparities by engaging the patient in a discussion of their drinking, substance use and medication adherence.
- Future research is needed to investigate the cardiovascular health of HIV-positive patients with alcohol and drug use problems.
 - A multi-level approach may be needed to determine factors associated with substance use disorders resulting in CVD events, to assess the association between HIV-related factors and CVD events, and to examine the social determinants of risk and outcomes for CVD events.

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Thank you!

For further questions or a copy of these slides, please email me:

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