# STARTING ART IN HIV+ DRUG USERS WHILE HOSPITALIZED PREDICTS HIV TREATMENT ENGAGEMENT

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## Background

To reduce morbidity, mortality and HIV transmission the U.S. Department of Health and Human Services recommends persons living with HIV/AIDS (PLWH) start ART as soon as clinical and/or psychological factors allow. Hospitalization may present an opportunity to start antiretroviral therapy (ART) including in persons who inject drugs (PWID) and also engage them in drug treatments[1].

Project HOPE (CTN0049) was a randomized controlled trial testing the effect of 6 months of Patient Navigation alone, or with Contingency Management vs. Treatment as Usual (TAU) on viral suppression rates (<200 copies/mL) at 6 and 12 months post-randomization. Patients were substance using and HIV+ and were recruited from the hospital. ART was initiated at providers' discretion[2].

## Objectives

CTN0049 recruited 801 HIV+ adult substance users in 11 hospitals across the US. This secondary analysis examined factors related to initiating ART in the hospital and its association with engagement in care and viral suppression.

## Methods

Differences in socio-demographics, HIV treatment history and other service use, site, substance use and social determinants of health were examined by those prescribed and not prescribed ART while hospitalized (chi-square and t-tests). The relationship of predictors with a p-value <.01 on likelihood of subsequent engagement in HIV care (defined as number of days to the first HIV primary care visit after discharge) and viral suppression at 6 and 12 months was explored, controlling for study arm.

## Results

Of 801 patients, 124 (15%) were prescribed ART in the hospital; this did not differ by study arm (Table 1). Opioid use (OR=2.06, 95%CI [1.35,3.13]) and participation in substance use treatment (OR=1.87, 95%CI [1.17,2.98]) were associated with greater likelihood of receiving ART in the hospital (Table 2). In a separate analysis, opioid use was associated with higher likelihood of being in substance use treatment (OR=3.75, 95%CI [2.50,5.62]). Controlling for rates of in hospital ART prescription, substance use treatment and opioid use, which differed by site (all p<.001), sites in the South (compared to North) were less likely to prescribe ART in the hospital (OR=0.40, 95%CI [0.27,0.61]) (Table 2). At the 12-month follow-up, median days before first HIV primary care visit was 29 in those who started ART in the hospital and 54 in those who did not (p=0.015) (Figure). Controlling for these factors and study arm, there was no association between starting ART in the hospital and viral suppression at 6 or 12 months (OR=1.51, 95%CI [0.98, 2.34]) and (OR=.83, 95% CI [.53, 1.31]), respectively.

[1]National Institute of Health. When to Start Antiretroviral Therapy. [Published on 2017, March 13]. At: Retrieved from https://aidsinfo.nih.gov/understanding-hiv-aids/fact-sheets/21/52/when-to-start-antiretroviral-therapy

[2]Metsch LR, Feaster DJ, Gooden L, et al. Effect of patient navigation with or without financial incentives on viral suppression among hospitalized patients with HIV infection and substance use: a randomized clinical trial. *JAMA* 2016;316:156–170.

## Table 1

| Demographic and Baseline HIV Care | ART initiation while hospitalized No (n=677, 85%) | | Yes (n=124, 15%) | | P-value |
|---|---|---|---|---|---|
| Age (mean, SD, y) | 44.6 | 10.1 | 45.0 | 9.1 | 0.707 |
| Gender (female) | 219 | 32% | 42 | 34% | 0.739 |
| Race/ethnicity | | | | | |
| Hispanic | 70 | 10% | 14 | 11% | **0.021** |
| Black | 492 | 73% | 87 | 71% | |
| White | 87 | 13% | 10 | 8% | |
| Other | 26 | 4% | 12 | 10% | |
| <High school | 270 | 40% | 49 | 40% | 0.470 |
| Employed | 76 | 11% | 17 | 14% | 0.427 |
| Health insurance | 443 | 66% | 91 | 75% | 0.058 |
| Years since diagnosis (median, IQR) | 10.4 | 14.8 | 11 | 17 | 0.979 |
| CD4 count (median, IQR) | 114 | 216 | 87 | 196 | 0.242 |
| AIDS defining illness history | 273 | 41% | 55 | 45% | 0.402 |
| On ART prior to admission | 265 | 39% | 44 | 35% | 0.442 |
| South (4 sites) | 360 | 53% | 39 | 31% | **<0.001** |
| Drug/alcohol use treatment | 96 | 14% | 29 | 24% | **0.008** |
| Opioid Use | 131 | 19% | 41 | 33% | **0.001** |
| Alcohol Use | 396 | 58% | 75 | 60% | 0.679 |
| Linked to HIV primary care | 305 | 45% | 60 | 49% | 0.407 |
| Physical or sexual abuse as child | 258 | 38% | 60 | 49% | **0.024** |
| Treatment Arms | | | | | 0.525 |
| Navigation only | 229 | 34% | 37 | 30% | |
| Navigation + Incentives | 230 | 34% | 41 | 33% | |
| TAU | 218 | 32% | 46 | 37% | |

***Fisher's exact test**

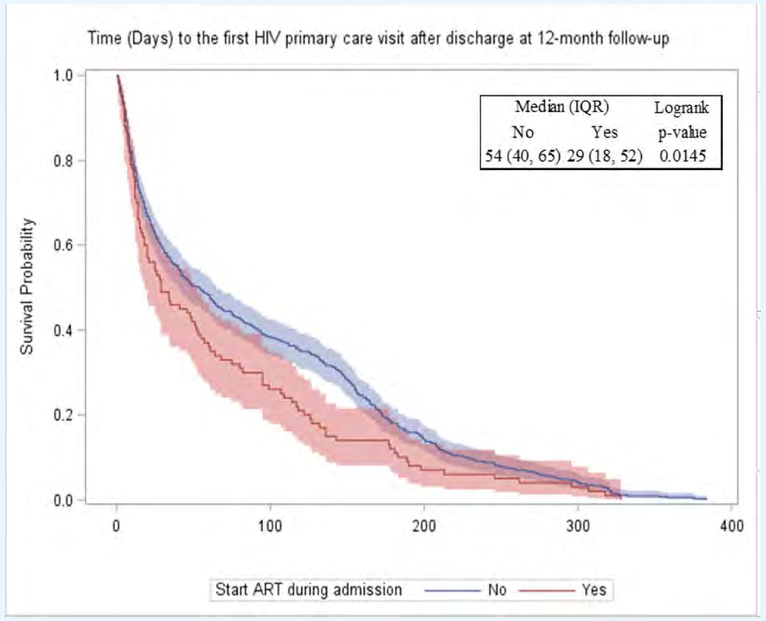
## Table 2

**Univariate and multiple logistic regression* to predict ART initiation while hospitalized**

| | | OR | 95% CI | | P-value | aOR | 95% CI | | P-value |
|---|---|---|---|---|---|---|---|---|---|
| Gender | Female vs Male | 1.07 | 0.71 | 1.61 | 0.740 | | | | |
| Ethnicity | Black vs White | 1.54 | 0.77 | 3.08 | 0.223 | | | | |
| | Hispanic vs White | 1.74 | 0.73 | 4.15 | 0.212 | | | | |
| | Other vs White | 4.02 | 1.56 | 10.35 | **0.004** | | | | |
| Age | 1 year increase | 1.00 | 0.98 | 1.02 | 0.706 | | | | |
| Site | South vs North | 0.40 | 0.27 | 0.61 | **<0.001** | 0.42 | 0.27 | 0.66 | **<0.001** |
| Drug/alcohol treatment | Yes vs No | 1.87 | 1.17 | 2.98 | **0.009** | | | | |
| Opioids | Yes vs No | 2.06 | 1.35 | 3.13 | **0.001** | 1.58 | 1.00 | 2.49 | **0.049** |
| Physical or sexual abuse as child | Yes vs No | 1.56 | 1.06 | 2.29 | **0.025** | 1.64 | 1.10 | 2.45 | **0.015** |
| BSI - anxiety | 1 unit increase | 1.04 | 1.01 | 1.07 | **0.015** | | | | |
| Cognitive impairment score | 1 unit increase | 0.93 | 0.88 | 1.00 | **0.039** | 0.92 | 0.86 | 0.99 | **0.019** |

***Multiple logistic regression using model selection methods (stepwise or forward, or backwards)**

## Figure 1




## Table 3

**Days to first HIV primary care visit after discharge at 12 months**
**Cox proportional hazards regression of control for gender, ethnicity, age and site**

| | | OR | 95% CI | | P-value |
|---|---|---|---|---|---|
| Gender | Female vs Male | 0.88 | 0.74 | 1.05 | 0.145 |
| Ethnicity | Black vs White | 0.79 | 0.61 | 1.02 | 0.075 |
| | Hispanic vs White | 0.66 | 0.46 | 0.95 | **0.025** |
| | Other vs White | 1.03 | 0.66 | 1.61 | 0.887 |
| Age | 1 year increase | 1.00 | 0.99 | 1.01 | 0.377 |
| Treatment Arms | Navigation only vs TAU | 1.28 | 1.05 | 1.57 | **0.016** |
| | Navigation + Incentives vs TAU | 1.38 | 1.14 | 1.68 | **0.001** |
| Start ART in hospital | Yes vs No | 1.31 | 1.05 | 1.64 | **0.016** |

**OR < 1 indicates more risk (longer days to first HIV primary care visit after discharge)**

## Conclusion

Starting ART during hospitalization was associated with shorter time to engagement in HIV care. Although not significant, there was a trend towards those prescribed ART in the hospital being more likely to be virally suppressed at 6 months than those who were not. Further research is needed to assess the impact of rapid initiation of ART in hospitalized substance users on treatment engagement and virologic outcomes.

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