

The impact of an HIV/AIDS adult integrated health program on leaving hospital against medical advice among HIV-positive people who use illicit drugs

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Background

- Leaving hospital against medical advice (AMA) is a major source of avoidable morbidity, mortality and healthcare expenditure, and is a major concern among people with severe drug addiction.
- Reports have suggested that approximately 25% of hospitalized people who inject drugs leave hospital AMA, and regularly experience “bounce back” admissions with worsening of infections or other comorbid conditions.
- Despite the substantial harms and costs associated with this problem, there is little empiric research on leaving hospital AMA specifically among people who use illicit drugs (PWUD) and are living with HIV disease.
- The objective of this study was to assess the impact of an innovative HIV/AIDS adult integrated health program on leaving hospital AMA among HIV-positive PWUD.

Methods

- Between 2005 and 2011, HIV-positive PWUD living in the Greater Vancouver region were recruited to participate in AIDS Care Cohort to evaluate Exposure to Survival Services through outreach efforts and self-referral.
- At enrollment and bi-annually, participants complete an interviewer-administered questionnaire which elicits a range of information. Key socio-demographic variables were asked only at baseline (e.g., age, gender), while time-updated variables (e.g., risk behaviours, access to health and harm reduction services) were measured in the past six months, unless otherwise indicated.
- Interview data was augmented by comprehensive information on HIV care and treatment outcomes from the local centralized HIV/AIDS registry (e.g., CD4 cell count) and from administrative hospital discharge data (e.g., leaving hospital AMA).
- Bivariable and multivariable generalized estimating equations (GEE) were used to estimate the effect of being a participant of the Dr. Peter Centre (DPC; a specialty HIV/AIDS-focused adult integrated health program that provides medical and harm reduction services, counselling, nutrition, and a supervised injection program) on leaving hospital AMA among HIV-positive PWUD participants.

Results

- In total, 181 HIV-positive PWUD were recruited into the study and experienced ≥ 1 hospitalization: 81 (44.3%) were women, and the median age was 43 years.
- Of the 406 hospital admissions among these individuals, 73 (39.9%) patients left the hospital AMA a total of 126 (31.0%) times.
- In bivariable analyses, being a participant of the DPC was negatively associated with leaving hospital AMA (odds ratio = 0.43; 95% confidence interval: 0.20 – 0.94).
- In a time-updated multivariable GEE model adjusted for various demographic, socioeconomic and clinical confounders, being a participant of the DPC remained independently associated with lower odds of leaving hospital AMA (adjusted odds ratio = 0.42; 95% confidence interval: 0.19 – 0.89).

Table 1: Characteristics of study participants at baseline (n = 181)				
Characteristic	Discharge against medical advice		Odds Ratio (95% CI)	p - value
	Yes n (%) n = 52	No n (%) n = 129		
Dr. Peter Centre participant				
yes	6 (11.5)	31 (24.0)	0.41 (0.16 – 1.06)	0.06
no	46 (88.5)	98 (76.0)		
Age				
median	41	44	0.96 (0.92 – 1.00)	0.05
IQR	(35 – 48)	(39 – 51)		
Gender				
male	27 (51.9)	73 (56.6)	0.83 (0.43 – 1.58)	0.57
female	25 (48.1)	56 (43.4)		
Ethnicity				
White	23 (44.2)	75 (58.1)	0.57 (0.30 – 1.09)	0.09
other	29 (55.8)	54 (41.9)		
Homeless*				
yes	15 (28.8)	38 (29.5)	0.97 (0.48 – 1.97)	0.94
no	37 (71.2)	91 (70.5)		
Mental illness diagnosis*				
yes	24 (46.2)	69 (53.5)	0.75 (0.39 – 1.42)	0.37
no	28 (53.8)	60 (46.5)		
Illicit drug use*				
≥ daily	38 (73.1)	71 (55.0)	2.22 (1.10 – 4.48)	0.02
< daily	14 (26.9)	58 (45.0)		
Enrollment in MMT*				
yes	22 (42.3)	61 (47.3)	0.82 (0.43 – 1.57)	0.54
no	30 (57.7)	68 (52.7)		
Difficulty finding equipment*				
yes	13 (25.0)	31 (24.0)	1.05 (0.50 – 2.22)	0.89
no	39 (75.0)	98 (76.0)		
pVL* (per log10 cells/mL)				
median	3.74	2.85	1.09 (0.87 – 1.36)	0.47
IQR	(1.65 – 4.54)	(1.65 – 4.66)		
CD4 cell count* (per 100 cells)				
median	3.12	2.85	1.10 (0.95 – 1.28)	0.21
IQR	(2.10 – 4.61)	(1.50 – 4.35)		
ART initiation ever				
yes	48 (92.3)	121 (93.8)	0.79 (0.23 – 2.76)	0.75
no	4 (7.7)	8 (6.2)		

CI: confidence interval; MMT: methadone maintenance therapy; pVL: plasma HIV-1 RNA viral load; ART: antiretroviral therapy
*Refers to the six month period prior to follow-up

Table 2: Crude and adjusted longitudinal estimates of the odds of leaving hospital against medical advice among 181 HIV-positive PWUD, 2005-2011				
Characteristic	Crude		Adjusted	
	Odds Ratio (95% CI)	p - value	Odds Ratio (95% CI)	p - value
Dr. Peter Centre participant				
(yes vs. no)	0.43 (0.20 – 0.94)	0.03	0.42 (0.19 – 0.89)	0.02
Age				
(per year older)	0.95 (0.92 – 0.98)	<0.01	0.96 (0.92 – 0.99)	0.02
Gender				
(male vs. female)	0.77 (0.45 – 1.31)	0.33	1.01 (0.59 – 1.75)	0.96
Ethnicity				
(White vs. other)	0.73 (0.43 – 1.24)	0.24	0.83 (0.48 – 1.45)	0.52
Homeless*				
(yes vs. no)	1.04 (0.56 – 1.93)	0.90	0.83 (0.45 – 1.54)	0.55
Mental illness diagnosis*				
(yes vs. no)	1.02 (0.59 – 1.77)	0.95	0.98 (0.58 – 1.65)	0.94
Illicit drug use*				
(≥ daily vs. < daily)	1.43 (0.87 – 2.37)	0.16	1.21 (0.71 – 2.06)	0.49
Enrollment in MMT*				
(yes vs. no)	0.81 (0.47 – 1.38)	0.43	0.76 (0.42 – 1.35)	0.34
Difficulty finding equipment*				
(yes vs. no)	1.52 (0.90 – 2.58)	0.12	1.59 (0.92 – 2.75)	0.10
pVL*				
(per log10 increase)	1.16 (0.98 – 1.38)	0.08	1.08 (0.91 – 1.29)	0.39
CD4 cell count*				
(per 100 cells)	1.01 (0.90 – 1.13)	0.88	1.01 (0.93 – 1.20)	0.41
ART initiation ever				
(yes vs. no)	0.63 (0.18 – 2.21)	0.47	0.71 (0.19 – 2.63)	0.61

PWUD: people who use illicit drugs; CI: confidence interval; MMT: methadone maintenance therapy; pVL: plasma HIV-1 RNA viral load; ART: antiretroviral therapy
*Refers to the six month period prior to follow-up

Discussion

- In this study, we found that HIV-positive PWUD who attended the DPC were less likely to leave hospital AMA compared to those who did not attend the DPC.
- Our findings and previous work suggests that hospitals can act as “risk environments” that increase the likelihood of leaving hospital AMA through the implementation of abstinence-only drug policies. Additionally, problems associated with stigma, discrimination, and inadequate pain management for HIV-positive PWUD patients can also contribute to leaving hospital AMA.
- Our findings demonstrate that the provision of a broad range of clinical, harm reduction, and support services through an innovative HIV/AIDS-focused adult integrated health program operating in proximity to a hospital may curb the rate of individuals leaving hospital prematurely.
- As a result, this type of integrated health program may reduce the incidence of preventable morbidity and mortality that may result from leaving care AMA.
- The development of similar programs in other settings may minimize high AMA-related human and fiscal costs among HIV-positive PWUD.

