Readmissions to the HIV Ward at St. Paul's Hospital, Vancouver, British Columbia, Canada from 2005-2014

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Background

- Hospital admissions for AIDS-defining illness have declined with the advent of effective antiretroviral therapy (ART).[1]
- Addictions and aging-related comorbidities may impact health outcomes among HIV-infected individuals.
- Those with a higher burden of medical comorbidities may require frequent admissions to hospital.
- We sought to evaluate factors associated with readmissions to the HIV Ward at St. Paul's Hospital (SPH) in Vancouver, B.C. Canada.

Methods

- We conducted a retrospective analysis of data collected for individuals discharged from the SPH HIV ward between July 1, 2005 and June 30, 2014.
- Definition of variables:
  - Readmission: >1 admission to the SPH HIV ward during defined time periods (7days, 30days, 90days, 1 year).
  - Unstable housing: housed in a single room occupancy hotel, shelter, or with no fixed address.
- Viral load, ART usage, and CD4 cell count data were obtained through linkage with the provincial Drug Treatment Program database.
- A Charlson Comorbidity Index score and a Veterans Aging Cohort Study (VACS) Index score[2] were calculated for each hospital admission.
- Factors associated with readmission within one year of previous discharge were evaluated using generalized estimating equations in a multivariate model.

Results

- Of 3915 hospitalizations, 59% (2321) were readmissions.
- Incidence of readmission within one year of primary admission has decreased over time (see Figure One).
- Individuals with readmission within one year of previous discharge were 72% male, 34% First Nation's, 47% in unstable housing, 77% IDU, and 85% on ART at admission to hospital.
- The proportion of readmissions within 7 and 30 days was higher for individuals discharged AMA, but by 1 year, the majority of all readmissions had occurred for both AMA and non-AMA discharged individuals (see Table 1 and Figure 2).
- Median VACS Index Scores have decreased over time in those requiring readmission (see Figure 3).
- Discharge AMA in previous hospitalization and IDU were strong predictors of readmission (see Table 2).

Figure 1. Readmission within one year of discharge incidence per calendar year

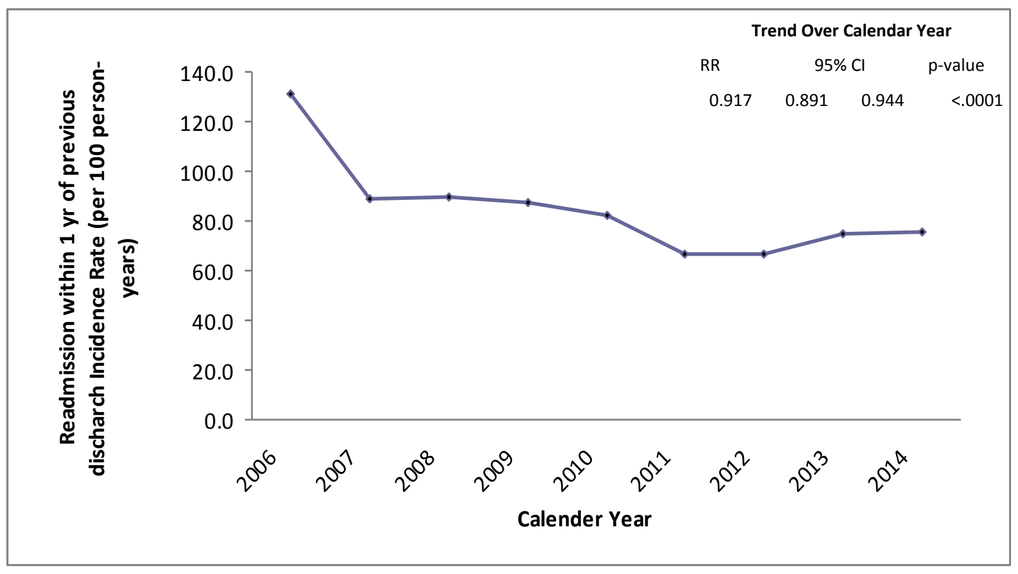

Table 1. Time to readmission for those discharged AMA vs not-AMA on previous hospitalization

	Within 7 days (n, %)	Within 30 days (n, %)	Within 90 days (n, %)	Within 1 year (n, %)
AMA last visit n = 597, 24.4%	165 (29.1)	243 (42.9)	309 (54.5)	445 (78.5)
Approved discharge on previous visit n =1744, 75.6%	177 (10.2)	478 (27.4)	785 (45.0)	1289 (73.9)
Association with AMA discharge RR (95% CI)	3.80 (2.96 - 4.87)	2.27 (1.86 - 2.78)	1.81 (1.51 - 2.16)	1.70 (1.46 - 1.98)

Figure 2. Probability of readmission for individuals discharged AMA and not-AMA during previous hospitalization

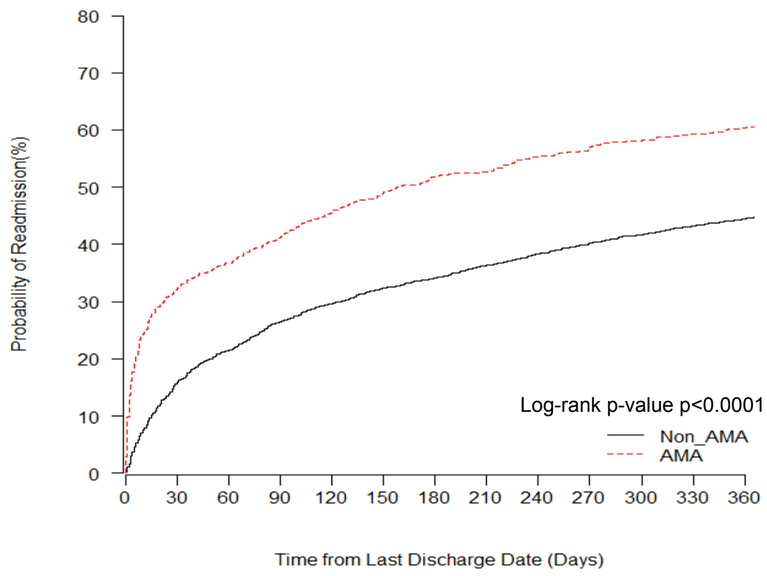

Figure 3. Median VACS score per calendar year for readmitted and non-readmitted individuals within one year of discharge

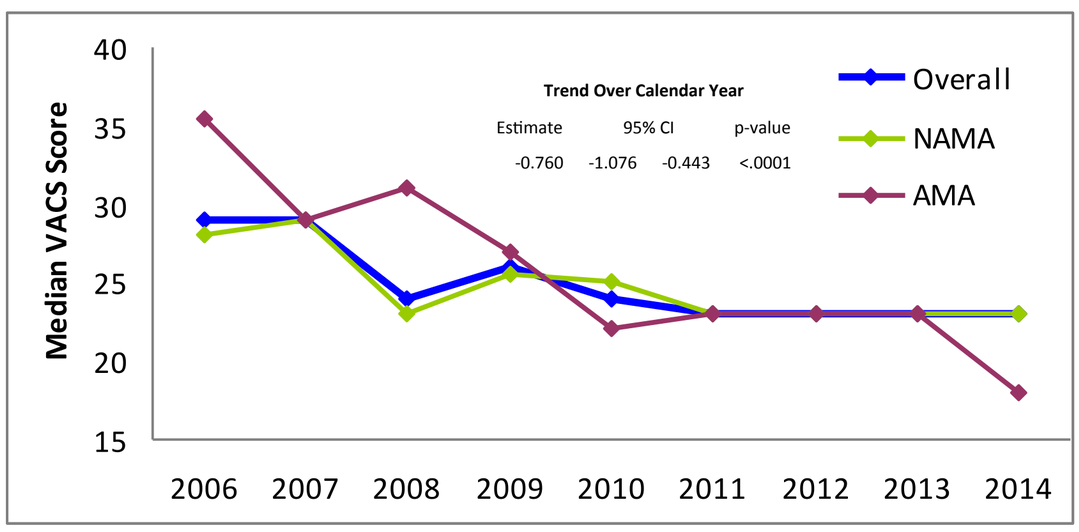

Table 2. Multivariate analysis of factors at index admission associated with readmission within 1 year

Variable	RR (95% CI)	ARR (95% CI)
Calendar year	0.92 (0.89-0.94)	0.91 (0.88-0.94)
AMA discharge	1.70 (1.46-1.98)	1.56 (1.33-1.81)
Unstable housing	1.43 (1.20-1.71)	Not selected
Crack/cocaine use	1.37 (1.19-1.58)	Not selected
IDU	1.97 (1.62-2.93)	1.78 (1.47-2.16)
VACS Index*	1.02 (1.01-1.02)	1.02 (1.01-1.02)
Charlson Score*	1.05 (1.03-1.07)	1.04 (1.02-1.06)
On ART	1.04 (0.904-1.20)	1.41 (1.21-1.64)

*Modeled as a continuous variable

Conclusions

- Readmission rates to the HIV ward within one year of initial admission have declined over time, but represent a significant proportion of admissions.
- Previous AMA discharge and IDU are associated with readmission to hospital.
- Medical comorbidity, as measured by VACS and Charlson Index scores, was associated with readmission.
- Assessment of alternate comorbidity indexes may help to better characterize disease burden and association with readmissions in individuals on ART.

References

[1]Trends in AIDS incidence and AIDS-related mortality in British Columbia between 1981 and 2013. Montaner *et al.* Lancet HIV. 2015 Mar 1;2(3):e92-e97

[2]Predictive accuracy of the Veterans Aging Cohort Study index for mortality with HIV infection: a North American cross cohort analysis. Justice *et al.* AIDS. 2013 Feb 1;62(2):149-63

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