

# Complex health challenges facing HIV-positive individuals with a history of incarceration in British Columbia, Canada

Kate A Salters<sup>1</sup>, Zi-Shan Cui<sup>1</sup>, Hasina Samji<sup>1</sup>, Will Small<sup>1,2</sup>, Yalin Chen<sup>1</sup>, Julio SG Montaner<sup>1,3</sup>, Robert S Hogg<sup>1,2</sup>



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1- BC Centre for Excellence in HIV/AIDS, Vancouver BC; 2- Faculty of Health Sciences, Simon Fraser University, Burnaby BC; 3- Faculty of Medicine, University of British Columbia, Vancouver BC

## Background

- Research suggests HIV-positive individuals with a history of incarceration may face unique barriers in obtaining HIV-related treatment and care, even in a context of universal health care.
- We sought to examine the prevalence and correlates of incarceration among a cohort of harder-to-reach people living with HIV/AIDS (PHA) in British Columbia (BC) as well as independent predictors of viral suppression within this specific population.

## Methods

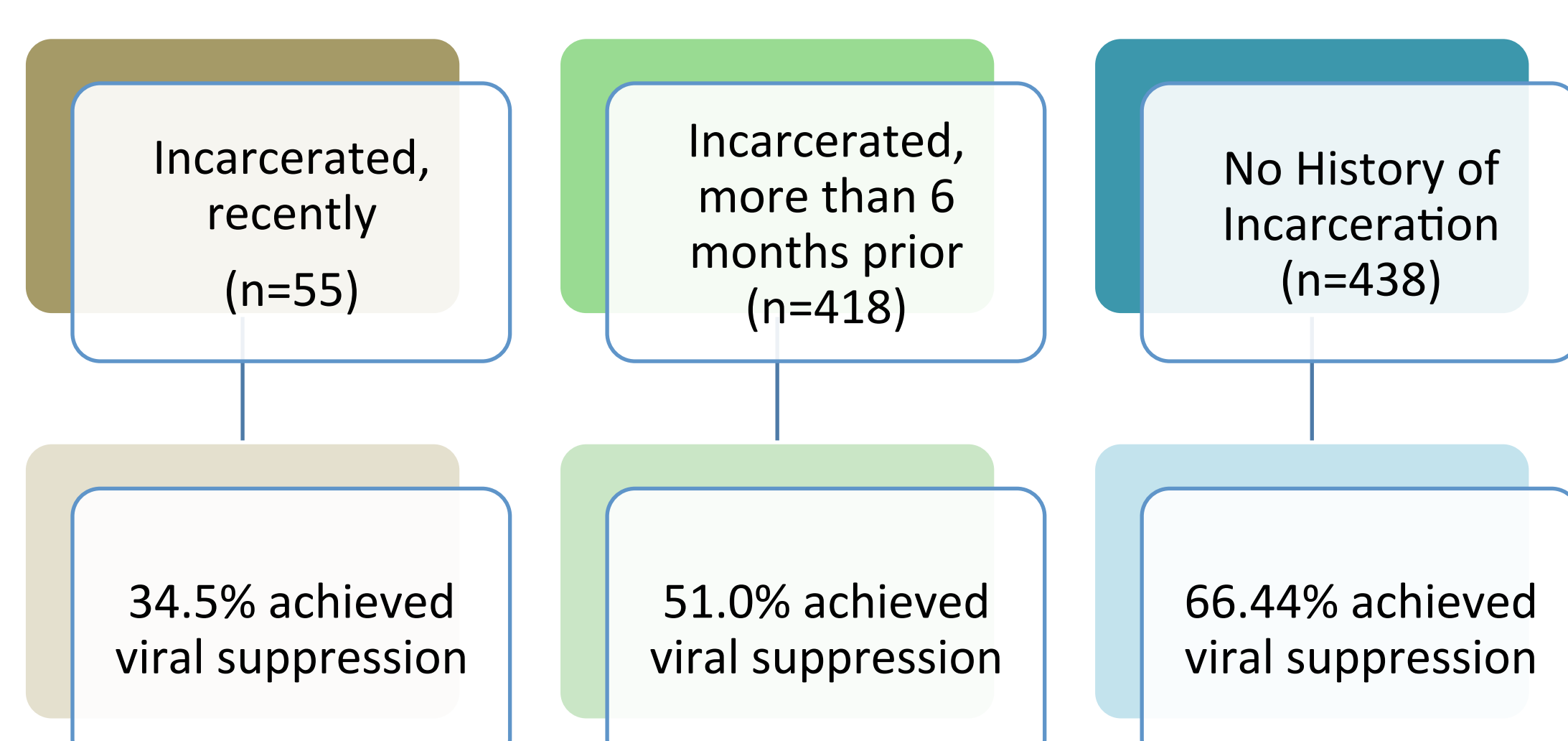
- The Longitudinal Investigation into Supportive and Ancillary health services (LISA) cohort is a prospective study examining treatment and care experiences of harder-to-reach PHA in BC.
- Interviewer-administered surveys collected information regarding housing, drug use, sexual behaviour and other relevant socio-demographic factors.
- Clinical variables, such as CD4 cell count and viral load, are obtained through linkages with the Drug Treatment Program at the BC Centre for Excellence in HIV/AIDS.
- Multivariable analyses identified factors associated with self-reported history of incarceration.
- Viral suppression was defined as having  $\geq 2$  sequential pVL of less than 50 copies per mL

## Results

**Table 1: Bivariate comparison of those with and without a history of incarceration**

Variable		No history of incarceration (n=438; 48%)	History of incarceration (n=476; 52%)	p-value
<b>Gender</b>	Male	321 (49%)	337 (51%)	0.571
	Female	114 (46%)	133 (54%)	
	MtF	3 (33%)	6 (67%)	
<b>Ethnicity</b>	Caucasian	301 (51%)	294 (49%)	<0.001
	Aboriginal	92 (37%)	156 (63%)	
	Other	45 (63%)	26 (37%)	
<b>Supportive Services, frequency of use</b>	Daily	91 (27%)	247 (73%)	<0.001
	Weekly	125 (44%)	159 (56%)	
	Monthly	56 (67%)	28 (33%)	
	~3 months	30 (81%)	7 (19%)	
<b>ART re-fill, frequency</b>	Daily	49 (20%)	197 (80%)	<0.001
	<Daily/Other	375 (59%)	262 (41%)	
	Bimonthly	10 (59%)	7 (41%)	
<b>Attacked or assaulted, previous 6 months</b>	No	140 (62%)	87 (38%)	<0.001
	Yes	295 (43%)	388 (57%)	
<b>Adherence, previous 12 months</b>	$\geq 95\%$	240 (55%)	193 (45%)	<0.001
	<95%	127 (38%)	209 (62%)	
<b>Achieved viral suppression, ever</b>	No	7 (23%)	23 (77%)	0.006
	Yes	431 (49%)	452 (51%)	
<b>Viral suppression, time of interview</b>	No	133 (38%)	218 (62%)	<0.001
	Yes	291 (56%)	232 (44%)	
<b>Quality of life- medical worries (median, IQR)</b>		67 (50-83)	58 (42-67)	<0.001
<b>Nadir CD4, (median, IQR)</b>		140 (50-210)	90 (30-150)	<0.001
<b>Alive, time of interview</b>	No	18 (23%)	59 (77%)	<0.001
	Yes	420 (50%)	417 (50%)	

**Figure 1: History of incarceration and viral suppression**



**Table 2: Multivariable model of factors independently associated with history of incarceration**

Variable	Adjusted Odds Ratio (95% Confidence Interval)	
<b>Supportive services, frequency of use</b>	daily	1.000
	weekly	0.669 (0.450-0.996)
	monthly	0.314 (0.176-0.559)
	~3 months	0.195 (0.073-0.521)
<b>Physician satisfaction</b>	very dissatisfied	1.00
	dissatisfied	1.985 (1.052-3.745)
	neutral	1.889 (0.987-3.981)
	satisfied	2.530 (1.374-4.658)
	very satisfied	3.217 (1.491-6.941)
<b>ART prescription re-fill</b>	< daily or other	1.000
	daily	1.462 (1.609-3.768)
	bi-monthly	0.379 (0.087-1.641)
<b>Attacked in the previous 3 months (vs no)</b>		1.880 (1.234-2.864)
<b>Viral suppression at interview (vs no)</b>		0.623 (0.436-0.891)
<b>Never achieved viral suppression (vs no)</b>		2.835 (0.857-9.373)
<b>Mortality (vs alive)</b>		1.749 (0.914-3.344)
<b>Quality of life- medical worries (vs lower)</b>		0.981 (0.973-0.989)
<b>CD4 Nadir (vs lower)</b>		0.997 (0.995-0.999)

**Table 3: Factors associated with viral suppression among those ever incarcerated**

Variable	Adjusted Odds Ratio (95% Confidence Interval)	
<b>Age</b>	1.029 (1.002-1.057)	
<b>Gender</b>	male	1.000
	female	0.638 (0.408-0.998)
	MtF	0.562 (0.096-3.283)
<b>Emergency room use within 3 months (vs no)</b>		0.861 (0.549-1.350)
<b>Individual health assessment</b>	better	1.000
	same	1.282 (0.784-2.096)
	worse	0.642 (0.389-1.059)
<b>On ART (vs not)</b>		0.232 (0.138-0.388)
<b>Adherence &lt;95%</b>		0.415 (0.255-0.674)
<b>CD4 cell count at interview</b>		1.000 (0.999-1.001)

## Discussion

Experiences of incarceration among PHA are associated with poorer clinical outcomes including viral non-suppression, lower CD4 cell count, and higher mortality. PHA who have a history of incarceration may also be more likely to have experiences of violence and and more medical concerns. PHA who have been incarcerated may require more frequent care that responds to their need for stability after periods of incarceration including daily medication support and support from community organizations.

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