Prospective changes in clinical outcomes among people living with HIV who have previously achieved virologic suppression

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Acknowledgement of Territories

I would like to acknowledge that we are gathered on Treaty 6 territory, the traditional territory of the Cree Peoples, and on the homeland of the Métis Nation.

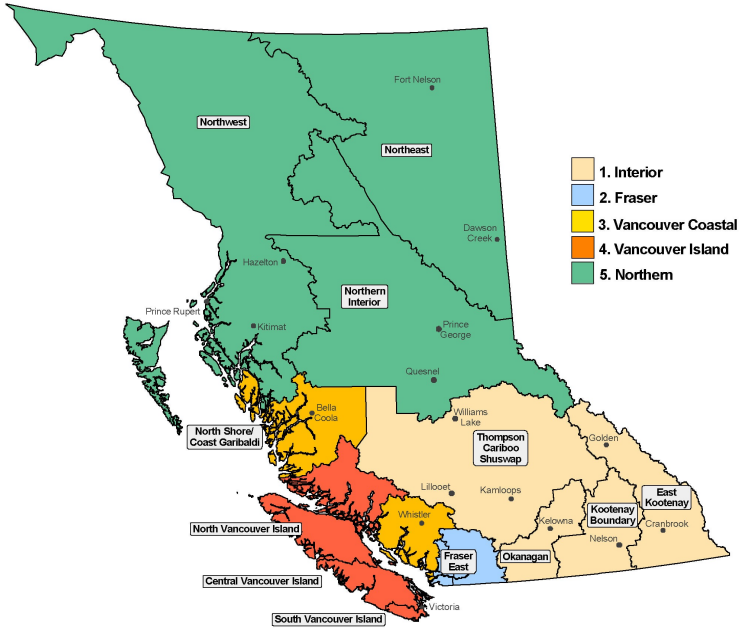
Conflicts of Interest Disclosure

- None to declare

The STOP HIV/AIDS Program Evaluation (SHAPE) Study

- Aim: To assess individual's experiences in HIV care in the era of the **Seek and Treat for Optimal Prevention of HIV/AIDS (STOP HIV/AIDS) Program**.

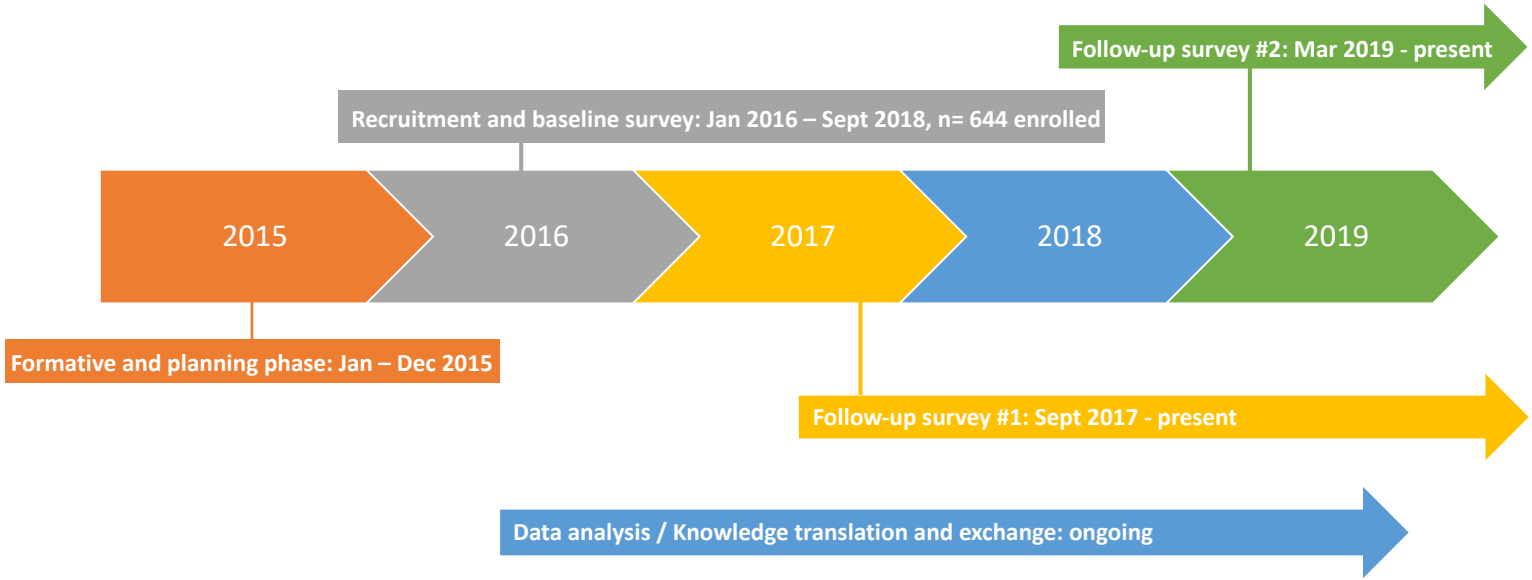
- As the STOP HIV/AIDS program expands access to HIV testing, treatment and care in BC, it is critical to monitor and evaluate social-structural determinants of clinical outcomes.



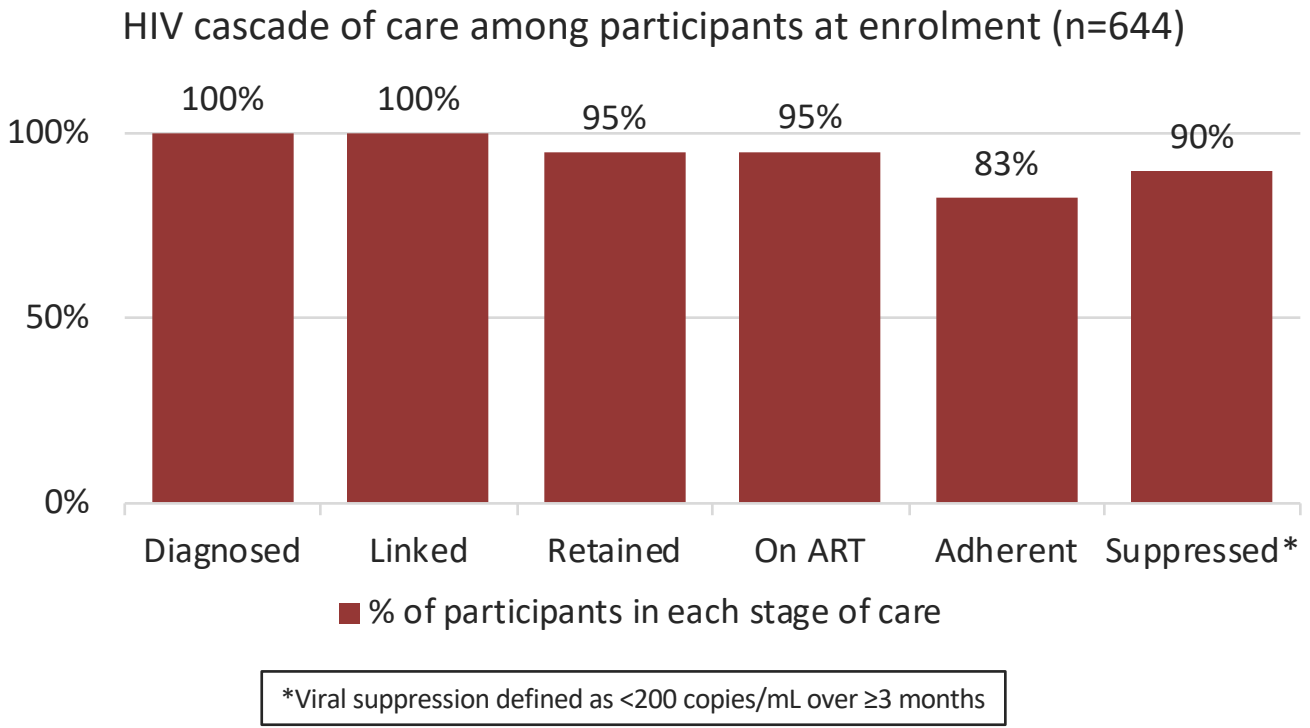
SHAPE: Cohort Design

- Prospective cohort of BC residents living with HIV, aged ≥ 19 years
- 3 surveys about HIV care experiences
  - Surveys are 18 months apart
  - Option of self-administering surveys online or being interviewed by a Peer Research Associate (PRA)
- Survey responses linked to longitudinal clinical data from the provincial Drug Treatment Program
- Purposive sampling used to recruit a sample that is inclusive of key geographic, demographic and clinical characteristics of people living with HIV in BC

SHAPE: Timeline



High levels of engagement in HIV care in SHAPE



*Viral suppression defined as <200 copies/mL over ≥3 months

Rationale and objectives

While viral suppression is high in the SHAPE cohort, we hypothesized that over time clinical outcomes will vary by key indicators.

Objectives

Among participants who has successfully progressed through the HIV cascade of care at baseline:

1. To assess prevalence of longitudinal viral suppression and optimal antiretroviral therapy (ART) adherence; and

2. To identify disparities in clinical outcomes based on socio-structural factors.

Methods

Outcomes variables

- Viral rebound: viral load >200 copies/mL for ≥ 3 months since enrolment
- ART interruption: ≥3 months off ART since enrolment
- ART adherence: ≥80% adherence during the year after enrolment

Independent variables

- Sociodemographic, behavioural and clinical variables were selected to encompass a comprehensive range factors that have the potential to influence clinical outcomes

Methods

Inclusion criteria

- Virologic suppression (viral load <200 copies/mL for ≥3 months) at baseline
- ≥1 year of follow-up time in SHAPE
- For ART interruption and adherence outcomes, participants had ≥80% ART adherence in the year prior to study enrolment

Analysis (group comparisons)

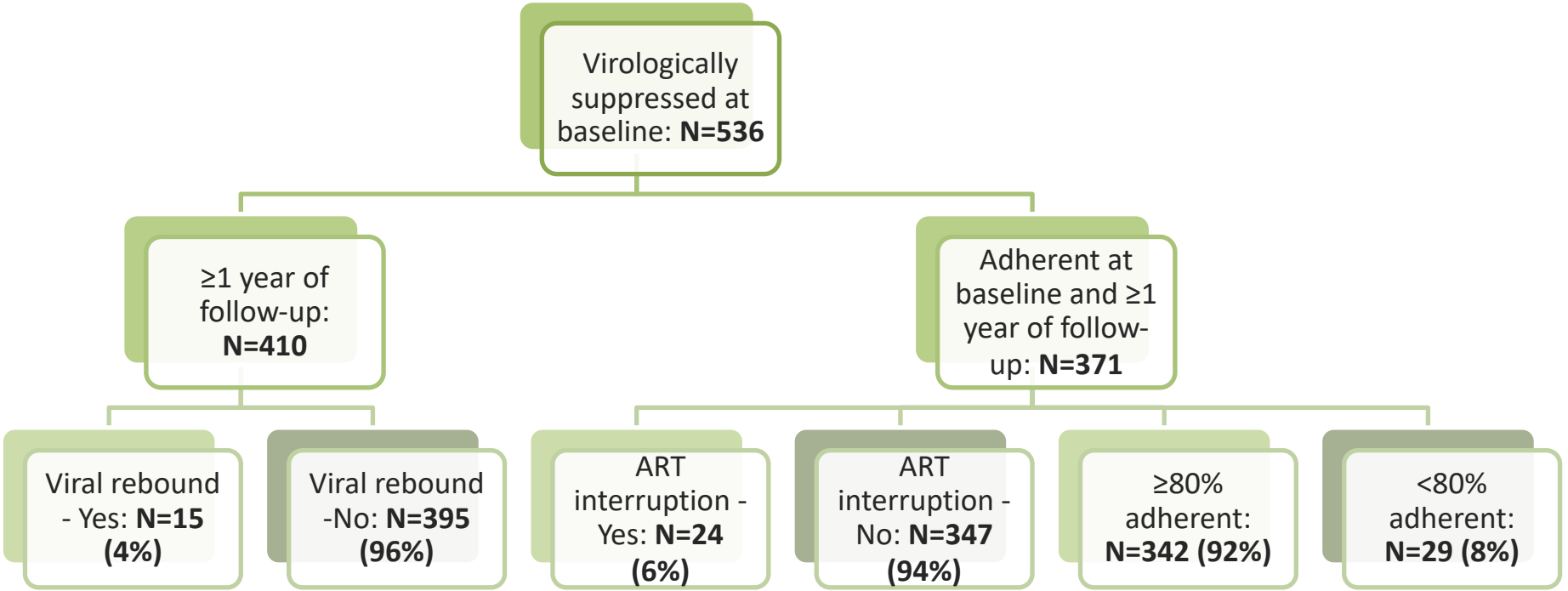
- Categorical variables [n(%)]: Pearson's chi-square or Fisher's exact tests
- Continuous variables [median(Q1-Q3)]: Wilcoxon rank-sum tests

Baseline characteristics of SHAPE participants by viral suppression status

Variables	Total (n= 596)	Virologic suppression Yes (n= 536)	Virologic suppression No (n= 60)	P-value
Age	51 (43 – 57)	51 (44—57)	47 (38 – 55)	0.025
Female Other	128 (22%) 11 (2%)	108 (20%) 10 (2%)	20 (33%) 1 (2%)	0.062
Men who have sex with men	356 (60%)	334 (62%)	22 (37%)	<0.001
Indigenous ethnicity[1]	131 (22%)	112 (21%)	19 (32%)	0.056
Annual income	17,100 (13,200 – 34,050)	18,000 (13,200 – 38,400)	13,266 (10,851 – 16,380)	<0.001
Completed greater than high school	285 (48%)	267 (50%)	18 (30%)	0.004
Incarcerated (ever)	203 (34%)	168 (31%)	35 (58%)	<0.001
Homeless (ever)	299 (50%)	248 (46%)	51 (85%)	<0.001
HCV diagnosis (ever)	201 (34%)	174 (33%)	27 (45%)	0.051
Injection drug use (past year) *Prefer not to answer*	118 (20%) 89 (15%)	90 (17%) 83 (16%)	28 (47%) 6 (10%)	<0.001
Resides in Vancouver Coastal Health Authority	299 (50%)	272 (51%)	27 (45%)	0.399

[1]The term 'Indigenous' is used here to describe participants who self-identified as Indigenous in the baseline survey instrument. 'Indigenous' is used to collectively describe the Indigenous peoples of Canada, inclusive of those who identify as 'Aboriginal' or First Nations, Métis and Inuit. This term is used while acknowledging the diversity of cultures, languages and traditions that exist among Indigenous Canadians.

Viral Rebound, ART interruptions and adherence during follow-up



Bivariate descriptive analyses: Differences in clinical outcomes by key characteristics

Variables	Viral Rebound			ART interruptions			Adherence		
	Yes (n=15)	No (n=395)	P-value	Yes (n=24)	No (n=347)	P-value	<80% (n=29)	≥80% (n=342)	P-value
Age	43 (34-46)	51 (44-58)	0.004	46 (34-53)	51 (44-58)	0.012	47 (38-52)	51 (44-58)	0.003
Female Other	5 (33%) 1 (7%)	76 (19%) 9 (2%)	0.127	6 (25%) 1 (4%)	65 (19%) 7 (2%)	0.287	8 (28%) 1 (3%)	63 (18%) 7 (2%)	0.407
Men who have sex with men	7 (47%)	262 (66%)	0.116	14 (58%)	235 (68%)	0.344	18 (62%)	231 (68%)	0.547
Indigenous ethnicity	6 (40%)	84 (21%)	0.108	10 (42%)	63 (18%)	0.013	10 (35%)	63 (18%)	0.037
Annual income	12,852 (10,080-17,016)	18,000 (13,200-40,000)	0.001	15,066 (11,256-36,000)	19,788 (13,200-41,316)	0.071	14,400 (11,112-36,000)	20,000 (13,200-41,316)	0.064
Completed greater than high school	5 (33%)	199 (50%)	0.195	7 (29%)	181 (52%)	0.029	11 (38%)	177 (52%)	0.153
Incarcerated (ever)	10 (67%)	111 (28%)	0.003	11 (46%)	83 (24%)	0.017	11 (38%)	83 (24%)	0.104
Homeless (ever)	13 (87%)	165 (42%)	0.001	15 (63%)	133 (38%)	0.019	15 (52%)	133 (39%)	0.175
HCV diagnosis (ever)	9 (60%)	110 (28%)	0.016	10 (42%)	88 (25%)	0.080	11 (38%)	87 (25%)	0.143
Injection drug use (past year) *Prefer not to answer*	5 (33%) 4 (27%)	59 (15%) 62 (16%)	0.028	5 (21%) 3 (13%)	42 (12%) 62 (18%)	0.408	5 (17%) 6 (21%)	42 (12%) 59 (17%)	0.616
Resides in Vancouver Coastal Health Authority	9 (60%)	242 (61%)	0.921	10 (42%)	219 (63%)	0.037	16 (55%)	213 (62%)	0.450

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Discussion and limitations

- Our findings demonstrate significant differences in clinical outcomes based on socio-structural factors that should be further examined

- Future research may contribute to identifying specific barriers that contribute to observed differences in viral rebound, treatment interruptions and adherence in this setting

- With (fortunately) few instances of poor outcomes, we are unable to examine the relationships between variables and clinical outcomes using adjusted regression models

- High levels of sustained viral suppression and ART adherence among participants may partially reflect sampling bias
  - Barriers to engaging in health research that have been reported among marginalized populations (Loutfy et al, Open AIDS J. 2014; Alvarez et al, West J Nurs Res 2006)

Conclusions and next steps

As follow-up time increases we hope to gain a more complete picture of participant experiences.

Next steps:

1. Mixed method approaches to understanding engagement in HIV care during the time of the STOP HIV/AIDS program in BC
   - Future qualitative research will take a strength-based approach to examine the experiences of individuals who have re-engaged with HIV treatment and care after experiencing an ART interruption

2. Supporting the development of an Indigenous-led research program that centres Indigenous knowledge and experiences in all aspects of the project
   - Development of meaningful and appropriate research questions and objectives will begin by eliciting discussion through sharing circles led by Indigenous Elders
   - Recruitment for sharing circles will be enabled through partnerships with local Indigenous community organizations and collaborators

Acknowledgments

We would like to thank:

- All the SHAPE participants who have shared their time with us and entrusted us with their personal experiences of living with HIV and accessing care;
- Our community partners who have supported us in engaging participants and provided us with spaces for recruitment and interviews;
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