

Supplemental Table 1. Temporal variation in characteristics of OHTN Cohort Study participants in annual HIV care (a)

	In care in 2001 n=3,081		In care in 2006 n=3,161		In care in 2011 n=3,674	
Age						
<30	175	5.7%	195	5.5%	197	5.4%
30-34	395	12.8%	270	7.6%	223	6.1%
35-49	1981	64.3%	2125	59.7%	1823	49.6%
50+	530	17.2%	967	27.2%	1431	38.9%
Mean (SD)	41.6 (8.7)		44.4 (9.6)		47.1 (10.3)	
Sex						
Male	2688	87.3%	3005	84.5%	3028	84.5%
Female	392	12.7%	551	15.5%	644	15.5%
HIV risk category						
MSM	1985	65.9%	2220	63.9%	2232	62.3%
MSM-IDU	151	5.0%	182	5.2%	185	5.2%
IDU	245	8.1%	232	6.7%	231	6.4%
Heterosexual/other	630	20.9%	840	24.2%	934	26.1%
Missing	70		83		92	
Region						
Toronto	1816	58.9%	2337	65.7%	2483	67.6%
East & North	844	27.4%	714	20.1%	625	17.0%
West	421	13.7%	506	14.2%	566	15.4%
Race/ethnicity						
White	2236	72.6%	2361	66.4%	2273	61.9%
African/Caribbean/Black	272	8.8%	454	12.8%	589	16.0%
Indigenous	231	7.5%	282	7.93%	320	8.71%
Other	342	11.1%	460	12.9%	492	13.4%
Citizenship & immigration						
Canadian-born	2307	77.1%	2502	72.2%	2448	68.5%
Born outside Canada	684	22.9%	961	27.8%	1125	31.5%
Unknown	90		94		101	
Year of HIV diagnosis						
<1990	915	29.7%	766	21.5%	607	16.5%
1990-99	2044	66.3%	1810	50.9%	1497	40.7%
2000-2004	122	3.96%	820	23.1%	784	21.3%
2005-2010	n/a		161	4.53%	688	18.7%
Years since HIV diagnosis						
Less than 5 years	777	25.2%	843	23.7%	644	17.5%
5 to <10 years	1093	35.5%	762	21.4%	786	21.4%
10 or more years	1211	39.3%	1952	54.9%	2244	61.1%
Mean (SD)	8.5(4.5)		10.8 (6.1)		13.2 (7.4)	

ART regimen among treated participants						
PI-based	966	41.2%	1167	42.2%	1235	37.8%
NNRTI-based	598	25.5%	879	31.8%	1118	34.2%
PI & NNRTI	614	26.2%	525	19.0%	411	12.6%
NRTI only	158	6.73%	80	2.9%	52	1.59%
Any new agent (b)	11	0.5%	115	4.16%	452	13.8%

Values shown are frequencies and percentages unless otherwise indicated. Percentages were calculated using values available from participants with non-missing data.

SD, standard deviation. MSM, men who have sex with men; IDU, injection drug use. ART, antiretroviral treatment. PI, protease inhibitor. NNRTI, non-nucleoside reverse transcriptase inhibitor. NRTI, nucleoside reverse transcriptase inhibitor.

(a) Participants were defined as being “in care” if they had at least one record of an HIV viral load or CD4 cell count as recorded in their clinical chart or at least one HIV viral load linked from Public Health Ontario Laboratories.

(b) All combinations containing fusion inhibitors, CCR5 antagonists, and integrase strand transfer inhibitors (INSTIs).

Supplemental Table 2. Sensitivity analysis of proportion on ART according to varying assumptions for person-years when not in annual care (“gap year”) or when lost-to-follow-up

	Primary analysis	Sensitivity analysis			
		A	B	C	D
Gap year	ART=0	ART=0	ART= last known	ART=0	Excluded
Lost-to- follow-up	ART=0 if gap; last known if no gap	ART=0	ART= last known	Excluded	Excluded
Number of person-years	44,680	44,680	44,680	37,014	35,759
2001	67.6%	64.6%	72.0%	73.5%	77.4%
2002	67.3%	63.4%	71.7%	73.5%	77.4%
2003	65.8%	61.6%	70.7%	72.2%	76.1%
2004	66.9%	62.5%	71.6%	73.9%	77.4%
2005	66.9%	62.3%	71.9%	74.9%	78.2%
2006	67.6%	63.0%	73.0%	76.2%	79.1%
2007	69.4%	64.6%	75.1%	78.8%	81.2%
2008	71.9%	67.0%	77.4%	82.4%	84.2%
2009	74.0%	69.0%	79.4%	85.3%	86.8%
2010	75.2%	69.6%	81.6%	87.7%	89.4%
2011	77.3%	71.5%	83.7%	89.5%	91.0%

Supplemental Table 3a. Effect of calendar year on the relation between sex, years since HIV diagnosis, and years since initiated ART with the proportion in annual care, OHTN Cohort Study, 2001-2011

	2001	2006	2011
	Adjusted ratio of proportions (95%CI)	Adjusted ratio of proportions (95%CI)	Adjusted ratio of proportions (95%CI)
Sex			
Male: reports sex with men	1.00	1.00	1.00
Male: no sex with men/unknown	1.01 (0.97, 1.04)	0.97 (0.94, 1.00)	0.93 (0.89, 0.96)
Female	1.02 (0.99, 1.04)	1.01 (0.99, 1.03)	1.00 (0.98, 1.03)
Years since HIV diagnosis			
<1 year	1.00	1.00	1.00
1 to <5 years	0.99 (0.96, 1.01)	0.96 (0.95, 0.97)	0.93 (0.91, 0.95)
5 to <10 years	0.97 (0.94, 1.00)	0.93 (0.91, 0.94)	0.88 (0.86, 0.91)
10 or more years	0.96 (0.94, 0.99)	0.89 (0.88, 0.91)	0.82 (0.80, 0.85)
Years since initiated ART			
Unknown time on ARV	0.72 (0.60, 0.87)	0.67 (0.57, 0.79)	0.62 (0.50, 0.76)
Treatment naive	0.88 (0.85, 0.92)	0.90 (0.88, 0.91)	0.91 (0.88, 0.94)
Off treatment	0.94 (0.91, 0.97)	0.90 (0.88, 0.92)	0.87 (0.83, 0.90)
1 to <5 years	0.98 (0.96, 1.01)	0.99 (0.98, 1.00)	1.00 (0.98, 1.02)
<1 year	1.00	1.00	1.00
5 to <10 years	0.98 (0.96, 1.00)	0.99 (0.98, 1.01)	1.00 (0.98, 1.03)
10 or more years	0.98 (0.95, 1.01)	1.00 (0.98, 1.02)	1.01 (0.98, 1.05)

Supplemental Table 3b. Effect of sex on the relation between history of injection drug use with the proportion in annual care, OHTN Cohort Study, 2001-2011

	Male: reports sex with men	Male: no sex with men or unknown	Female
	Adjusted ratio of proportions (95%CI)	Adjusted ratio of proportions (95%CI)	Adjusted ratio of proportions (95%CI)
History of injection drug use			
Yes	1.00 (0.98, 1.03)	0.89 (0.84, 0.94)	0.93 (0.88, 0.99)
No	1.00	1.00	1.00

Ratios of proportions estimated using multivariable Poisson regression within a generalized estimating equation framework and auto-regressive correlation structure. Adjusted for year, age, sex, history of injection drug use, region of Ontario, race/ethnicity, citizenship and immigration, years since HIV diagnosis, years since initiated ART, and clinic. $P < 0.001$ for all interaction terms.

Supplemental Table 4. Effect of calendar year on the relation between years since initiated ART with the proportion in continuous care, OHTN Cohort Study, 2001-2011

	2001	2006	2011
	Adjusted ratio of proportions (95%CI)	Adjusted ratio of proportions (95%CI)	Adjusted ratio of proportions (95%CI)
Years since initiated ART			
Unknown time	0.87 (0.72, 1.04)	0.85 (0.77, 0.94)	0.83 (0.73, 0.95)
Treatment naïve	0.83 (0.79, 0.87)	0.86 (0.84, 0.88)	0.89 (0.86, 0.93)
Off treatment	0.99 (0.94, 1.04)	0.93 (0.90, 0.95)	0.87 (0.83, 0.91)
<1 year	1.00	1.00	1.00
1 to <5 years	1.08 (1.04, 1.12)	1.01 (0.99, 1.03)	0.95 (0.92, 0.98)
5 to <10 years	1.08 (1.04, 1.12)	1.01 (0.99, 1.03)	0.94 (0.92, 0.97)
10 or more years	1.10 (1.06, 1.15)	1.02 (1.00, 1.04)	0.94 (0.92, 0.97)

Ratios of proportions estimated using multivariable Poisson regression within a generalized estimating equation framework and auto-regressive correlation structure. Adjusted for year, age, sex, history of injection drug use, region of Ontario, race/ethnicity, citizenship and immigration, years since HIV diagnosis, years since initiated ART and clinic. $P < 0.001$ for the interaction term.

Supplemental Table 5. Effect of sex on the relation between citizenship and immigration and years since HIV diagnosis with the proportion on ART, OHTN Cohort Study, 2001-2011

	Male: reports sex with men	Male: no sex with men / unknown	Female
	Adjusted ratio of proportions (95%CI)	Adjusted ratio of proportions (95%CI)	Adjusted ratio of proportions (95%CI)
Citizenship and immigration			
Canadian-born	1.00	1.00	1.00
Immigrant	1.01 (0.98, 1.04)	1.02 (0.96, 1.08)	1.16 (1.09, 1.24)
Unknown status	1.04 (0.92, 1.17)	1.00 (0.92, 1.09)	1.00 (0.85, 1.17)
Years since HIV diagnosis			
<1 year	1.00	1.00	1.00
1 to <5 years	1.26 (1.20, 1.31)	1.14 (1.07, 1.21)	1.02 (0.95, 1.10)
5 to <10 years	1.37 (1.31, 1.44)	1.20 (1.12, 1.29)	1.15 (1.06, 1.24)
10 or more years	1.41 (1.35, 1.48)	1.26 (1.17, 1.36)	1.21 (1.12, 1.31)

Ratios of proportions estimated using multivariable Poisson regression within a generalized estimating equation framework and auto-regressive correlation structure. Adjusted for year, age, sex, history of injection drug use, region of Ontario, race/ethnicity, citizenship and immigration, years since HIV diagnosis, clinic and interaction terms listed. $P < 0.001$ for all interaction terms.

Supplemental Table 6. Effect of calendar year on the relation between years since initiated ART with the proportion with suppressed viral load, OHTN Cohort Study, 2001-2011

	2001	2006	2011
	Adjusted ratio of proportions (95%CI)	Adjusted ratio of proportions (95%CI)	Adjusted ratio of proportions (95%CI)
1 to <5 years vs <1 year	1.20 (1.12, 1.30)	1.22 (1.18, 1.27)	1.24 (1.17, 1.32)
5 to <10 years vs <1 year	1.06 (0.99, 1.15)	1.16 (1.12, 1.21)	1.27 (1.20, 1.35)
10 or more years vs <1 year	1.01 (0.93, 1.09)	1.13 (1.09, 1.17)	1.26 (1.19, 1.34)

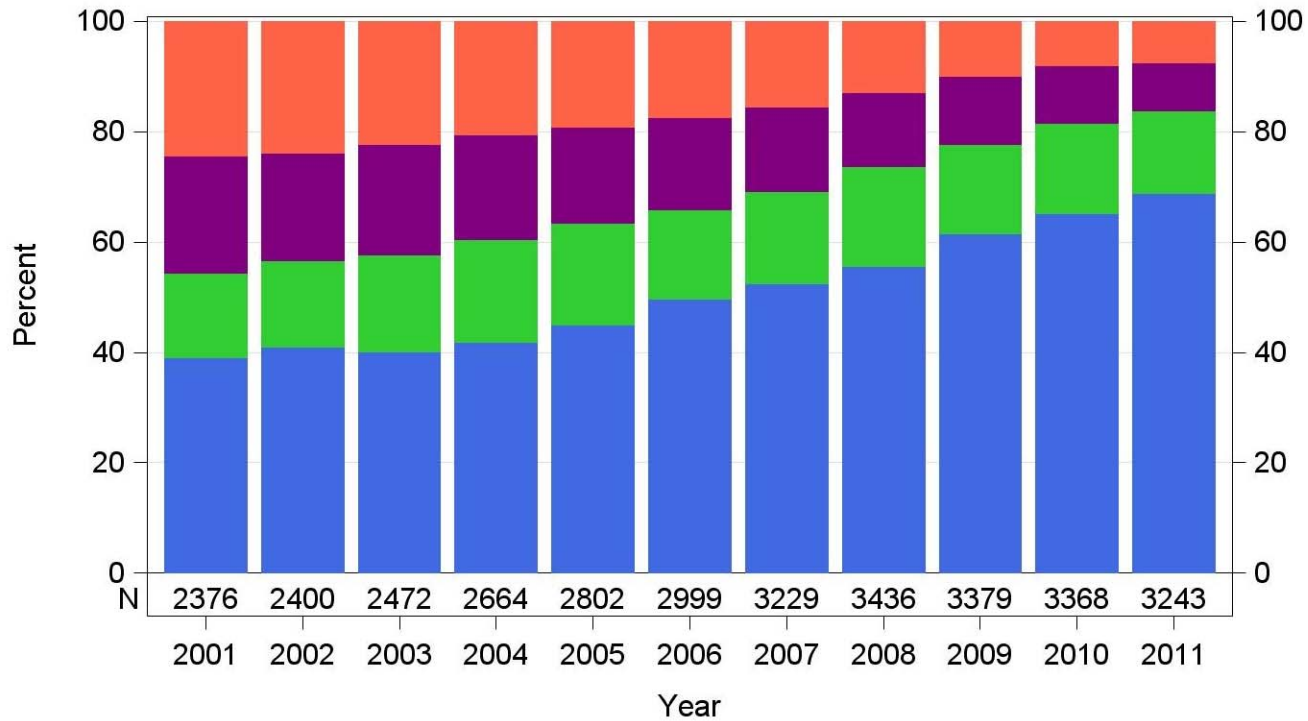
Ratios of proportions estimated using multivariable Poisson regression within a generalized estimating equation framework and auto-regressive correlation structure. Adjusted for year, age, sex, history of injection drug use, region of Ontario, race/ethnicity, citizenship and immigration, years since initiated ART, regimen and clinic. $P < 0.001$ for the interaction term.

Supplemental Table 7. Effect of calendar year on the relation between years since initiated ART with the proportion with undetectable viral load, OHTN Cohort Study, 2001-2011

	2001	2006	2011
	Adjusted ratio of proportions (95%CI)	Adjusted ratio of proportions (95%CI)	Adjusted ratio of proportions (95%CI)
1 to <5 years vs. <1 year	1.31 (1.20, 1.44)	1.34 (1.28, 1.40)	1.37 (1.27, 1.48)
5 to <10 years vs. <1 year	1.15 (1.04, 1.27)	1.27 (1.21, 1.33)	1.40 (1.30, 1.51)
10 or more years vs. <1 year	1.11 (1.00, 1.23)	1.24 (1.18, 1.31)	1.39 (1.29, 1.50)

Ratios of proportions estimated using multivariable Poisson regression within a generalized estimating equation framework and auto-regressive correlation structure. Adjusted for year, age, sex, history of injection drug use, region of Ontario, race/ethnicity, citizenship and immigration, years since initiated ART, regimen and clinic. $P < 0.001$ for the interaction term.

Supplemental Figure 1. Clinical status according to CD4 cell count and HIV viral load among persons in annual HIV care, OHTN Cohort Study, 2001-2011



Blue: Viral load <200 copies/mL and CD4 cell count per mm³ ≥350.
 Green: Viral load <200 copies/mL and CD4 cell count per mm³ <350.
 Purple: Viral load ≥200 copies/mL and CD4 cell count per mm³ ≥350.
 Orange: Viral load ≥200 copies/mL and CD4 cell count per mm³ <350.