Age-related Differences in HIV Care Engagement: Results from the OHTN Cohort Study

Michael Manno[1], Tony Antoniou[3], Jean Bacon[1], Anita Benoit[2], Jeff Cohen[8], Tracey Conway[1], Curtis Cooper[5], Patrick Cupido[1], Tony DiPede[1], Brooke Ellis[1], Sandra Gardner[1], Claire Kendall[5], Lucia Light[1], Mona Loutfy[2], Frank McGee[4], James Murray[4], Janet Raboud[2], Anita Rachlis[2], Edward Ralph[6], Sean B. Rourke[1], Wendy Wobeser[7], and Ann N. Burchell[1] for the OHTN Cohort Study Team

1) Ontario HIV Treatment Network; 2) University of Toronto; 3) St. Michael's Hospital; 4) AIDS Bureau, Ontario Ministry of Health and Long Term Care; 5) University of Ottawa; 6) St. Joseph's Hospital, London; 7) Kingston Hotel Dieu Hospital; 8) Windsor Regional Hospital

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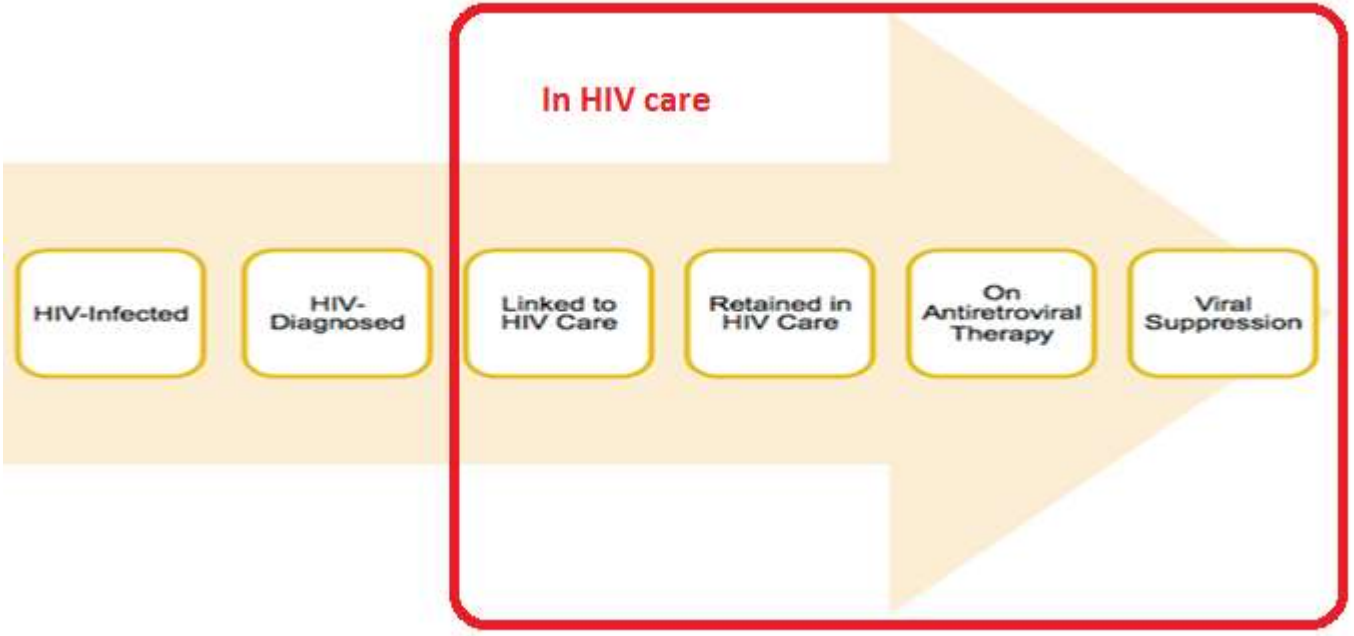
Continuum of HIV care

- The “treatment cascade” is a relatively new framework to depict the degree to which people infected with HIV are diagnosed in a timely fashion, become engaged in HIV care, and ultimately are successfully treated with antiretrovirals (ART).
- Also referred to as the “test, link to care, and treatment cascade”, “HIV care cascade”, or the “continuum of care engagement”.



Background

- Among PHAs in US in 2009, significant age disparities exist at each step in the continuum of HIV care
- Among PHAs aged 25-34
  - 15% had viral suppression compared to 36% of those age 55-64
  - 28% were retained in care compared to 46% of those age 55-64
- Factors for suboptimal HIV care engagement for younger people
  - Lower rates of testing
  - Reduced sense of urgency
  - Less adherence to an ART regimen
  - Higher CD4 count may have excluded them from treatment eligibility
- Suspect age disparities also exist elsewhere

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Objective

- To compare and contrast HIV care engagement indicators between age groups, adjusting for potential confounders
- Proportion
  - In continuous care
  - That have initiated and adherent to ART
  - With suppressed or undetectable viral load

OHTN Cohort Study (OCS) Design

- Ongoing observational, open dynamic cohort of HIV-positive persons in care in Ontario
  - HIV Ontario Observational Database (1994-1999)
  - HIV Infrastructure Information Program (2000-2006)
  - Renamed OCS in 2007
- Over 6,100 participants recruited from specialized HIV clinics & primary care practices throughout Ontario
- Data from medical charts (manual abstraction or clinical management systems) & face-to-face interviews
- Data linkage with **Public Health Ontario Laboratories**

Rourke et al. Cohort profile. *Int J Epidemiol,* 2013

HIV care engagement indicators

Among persons alive in 2011 with ≥1 HIV care visits

Continuous care (retained in care)	≥2 HIV care visit encounters in 2011 at least 3 months apart, measured by proxy using viral loads or CD4 cell counts
On ART	Initiated ART before or during 2011 with no evidence of having stopped
Suppressed VL	<200 copies/mL at last measurement in 2011
Undetectable VL	<40 copies/mL at last measurement in 2011

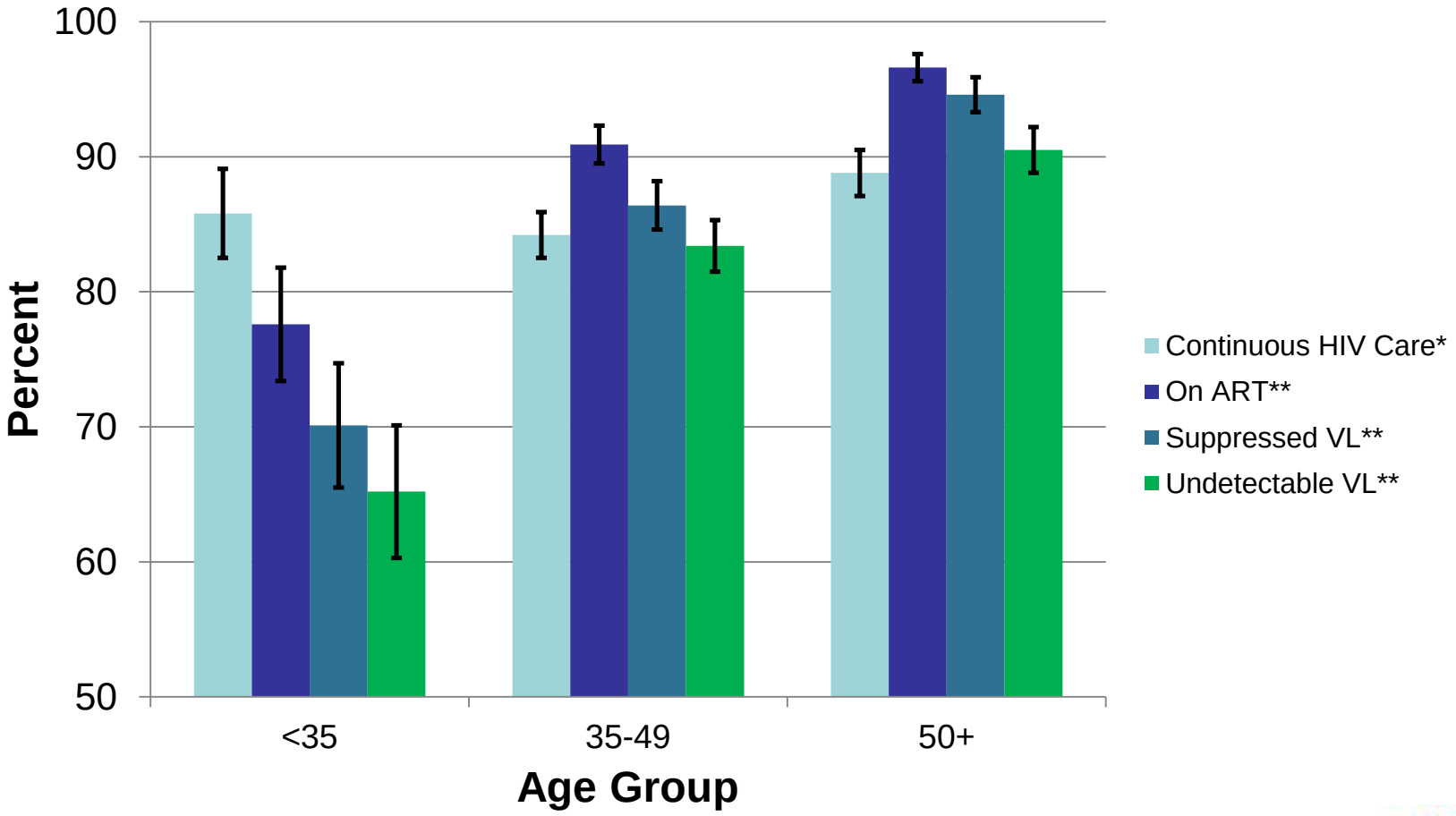
Methods

- Logistic regression used to compare indicators among persons age <35, 35-49, 50+
- Adjust for potential confounders
  - Region
  - Risk Category (MSM, IDU, etc)
  - Years since HIV diagnosis
  - Drug coverage
  - Ethnicity

Characteristics of participants (n=3273)

Variable	Level	%	Variable	Level	%
Age	<35	12	**Years Since HIV+**	<5	19
	35-49	50		5-9.9	23
	50+	38		10+	58
	Mean	47		Mean	13
Sex	MSM	66	**Drug Coverage** (most recent)	Employer	13
	Non-MSM male / unknown	15		ODB	22
	Female	19		Out of Pocket	2
Risk Category	MSM	61		Trillium	13
	MSM-IDU	5		Multiple	5
	IDU	6		Unknown	46
	Hetero/Other	27	**Race/Ethnicity**	White	61
Region	Toronto	68		African/Caribbean/Black	17
	East/North	17		Aboriginal	9
	West	16		Other	13

Proportions & 95%CI for Indicators by Age Group



* P<0.01 Chi-square test

** P<0.001 Test for trend

Age as a prognostic factor for HIV care engagement

Indicator	Age Effect	Adjusted OR*	
		OR (95% CI)	P-value
Continuous Care (N=3199)**	<35	1.0	0.02
	35-49	0.9 (0.6, 1.4)	
	50+	1.3 (0.9, 2.1)	
On ART (N=3188)	<35	1.0	<.0001
	35-49	1.6 (1.2, 2.2)	
	50+	3.5 (2.2, 5.4)	
Suppressed VL (N=3048)	<35	1.0	<.0001
	35-49	1.9 (1.4, 2.6)	
	50+	4.3 (2.9, 6.5)	
Undetectable VL (N=3048)	<35	1.00	<.0001
	35-49	1.9 (1.5, 2.6)	
	50+	3.2 (2.3, 4.5)	

* Adjusted for Region, MSM, IDU, Ethnicity, Years since HIV+ and Drug coverage

** Additional adjustment for ART and Undetectable VL

Interaction effect for age & years since HIV diagnosis for being on ART

	Time since HIV diagnosis			
	<10 years		≥10 years	
Age	OR (95% CI)	P-value	OR (95% CI)	P-value
<35	1.00	<.0001	1.0	<.0001
35-49	1.6 (1.2, 2.3)		6.9 (2.9, 16.4)	
50+	3.5 (2.0, 6.0)		14.4 (5.6, 36.9)	

P-Value for Age & Years HIV+ interaction = 0.003

* Adjusted for Region, MSM, IDU, Ethnicity and Drug coverage

Limitations

- OCS participants represent persons in HIV care, not necessarily all with HIV in Ontario
- CD4 cell counts & HIV viral loads used as proxy measures for HIV care visit encounters
- Not able to apply the stricter definitions of being on ART due to incomplete data and different data collection methods from various clinics

Conclusions

- In 2011, older adults with HIV most likely to be in continuous care, on ART and successfully suppressed or undetectable VL
- Age disparities exist for each indicator even after controlling for other factors
- Additional research needed to characterize barriers & facilitators of HIV care engagement among younger adults
- Additional efforts needed to ensure that PHAs of all ages and groups – disadvantaged or privileged – receive optimal care to reduce disease burden and transmission

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OCS Study Team

Sean B Rourke (PI)
Ahmed M Bayoumi
Jeffrey Cohen
Fred Crouzat
Kevin Gough
Mona Loutfy
Janet Raboud
Edward Ralph
Irving E Salit
Marek Smieja
Ann N Burchell (Co-PI)
John Cairney
Curtis Cooper
Sandra Gardner
Don Kilby
Nicole Mittmann
Anita Rachlis
Sergio Rueda
Roger Sandre
Wendy Wobeser

Staff

Kevin Challacombe
Brooke Ellis
Mark Fisher
Robert Hudder
Lucia Light
Michael Manno
Veronika Moravan
Nahid Qureshi
Samantha Robinson

OCS Governance Committee

Patrick Cupido (Chair)
Adrian Betts
Les Bowman
Tony Di Pede
Brian Huskins
Troy Grennan
Nathan Lachowsky
John MacTavish
Colleen Price
Anita Benoit
Tracey Conway
Michael Hamilton
Clemon George
Claire Kendall
Joanne Lindsay
Shari Margolese
Rosie Thein

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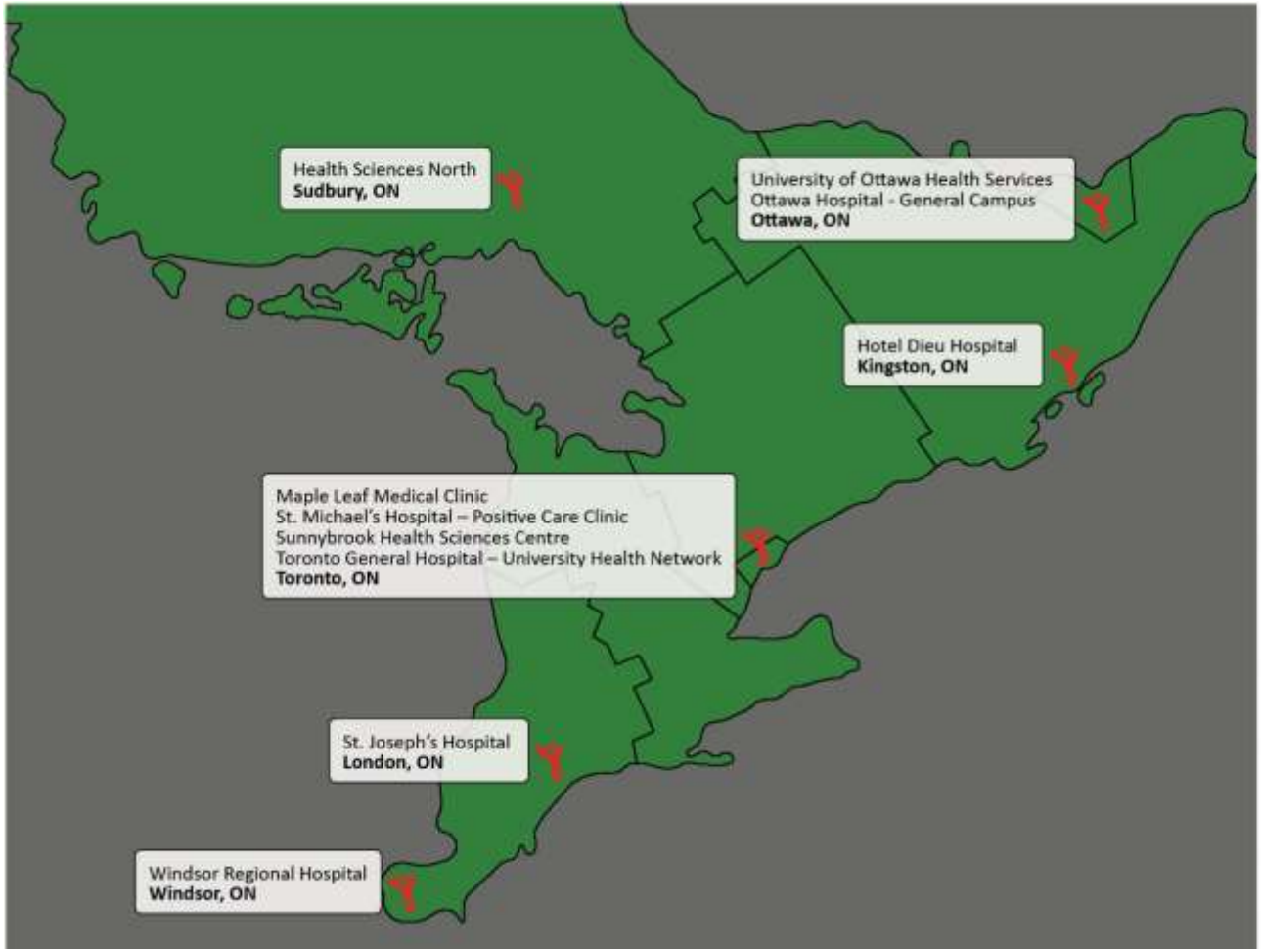
Data Linkage

Public Health Ontario Laboratories

Thank you

OCS Clinic Sites



OCS ACTIVE SITES

Health Sciences North
Sudbury
Dr. Roger Sandre

Hotel Dieu Hospital
Kingston
Dr. Wendy Wobeser

Maple Leaf Medical Clinic
Toronto
Dr. Fred Crouzat

Ottawa Hospital
Ottawa
Dr. Curtis Cooper

St. Joseph's Hospital
London
Dr. Edward Ralph

St. Michael's Hospital
Toronto
Dr. Kevin Gough

Sunnybrook Health Sciences Centre
Toronto
Drs. Anita Rachlis and Nicole Mittmann

Toronto General Hospital
Toronto
Dr. Irving Salit

University of Ottawa Health Services
Ottawa
Dr. Don Kilby

Windsor Regional Hospital
Windsor
Dr. Jeffrey Cohen

Background

- Making sure PHAs are accessing and staying in care is vital to achieving positive health outcomes
- Access and retention are necessary to achieve the full benefits of ART and other aspects of care
- Studies have identified gaps exist along care continuum
- Identifying gaps is important in order to:
  - Minimize HIV disease progression among PHAs
  - Prevent transmission to others
- According to the US CDCP published findings, <30% of American PHAs are in care, treated and virally suppressed
- In BC a study found that while 80% of PHAs have been diagnosed, only 32% had suppressed VL (Nosyk et al)

Inclusion criteria

Criteria	Number excluded	Remaining
December 2012 release	0	6129
No CD4 and no VL data	8	6121
No date of HIV diagnosis	86	6038
HIV diagnosis < January 1 of the year	123	5915
Born in Canada or arrived in Canada < Jan 1 2011	18	5897
"Active in cohort" in 2011, defined as ≥1 viral load or CD4 test submitted by the participating OCS clinic in Jan 1 through Dec 31, 2011	2463	3434
Any record of death ≤Dec 31, of the year	26	3408
Site closed after Jan 1st of the year	135	**3273**