Continuous HIV care supports antiretroviral therapy (ART) initiation and adherence, management of comorbidities, and prolongs survival. Retention along the HIV continuum of care may be affected by various social and structural factors. As a result, some populations may be at increased risk of discontinuing care or experiencing gaps. We investigated predictive effects of social determinants of health and substance use on subsequent retention in HIV care in a clinical cohort in Ontario, Canada.

Methods

- Inclusion criteria: participants interviewed in 2009 with viral load data available from Public Health Ontario Laboratories and were not known to have died in 2010 or 2011.
- We used multinomial logistic regression to identify independent predictors of retention in 2010–2011, defined as:
  1. Continuous care throughout 2010–2011 (≥2 viral loads >90 days apart in both years; reference category);
  2. Discontinuous care in 2010 or 2011 (1 viral load/year); and
  3. A gap in care (≥1 year without a viral load).

OHTN Cohort Study (OCS) Profile

The OCS is an anonymous, multi-site, open dynamic cohort of people attending specialty HIV clinics in Ontario, Canada. Primary data collection includes medical chart abstractions and annual interviews. We also conduct record linkage with external administrative health databases including the Public Health Ontario Laboratories. As of 03/2014, a total of 6,408 participants were enrolled and followed over 38,388 person-years. Average annual attrition is 3.8 per 100 person-years. As of 03/2014, 58% (3,709) were still under active follow-up.

Results

- On average, the 1854 participants were male (85%), MSM (72%), White (66%), diagnosed ≥10 years ago (60%), and on ART (90%).
- In 2010–2011, 79.5% were in continuous care both years, 15.9% had discontinuous care, and 4.6% had a gap in care.
- Discontinuous care in 2009 predicted (P=0.0001) poor future retention (Figure 1).
- In a model excluding continuity of care in 2009, independent risk factors for sub-optimal retention were younger age, recent non-injection substance use, and heterosexual orientation among men (Figure 1 and Table 1).

Table 1. Risk factors for discontinuous and gaps in HIV care compared to continuous care in 2010–2011

<table>
<thead>
<tr>
<th>Risk factor as of 2009</th>
<th>Odds ratio (95%CI)</th>
<th>Odds ratio (95%CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (10+ years)</td>
<td>0.83 (0.71-0.99)</td>
<td>0.68 (0.56-0.89)</td>
</tr>
<tr>
<td>Male: MFM</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Male: Heterosexual</td>
<td>1.75 (1.13-2.70)</td>
<td>1.67 (0.94-3.00)</td>
</tr>
<tr>
<td>Female: Heterosexual</td>
<td>1.15 (0.75-1.78)</td>
<td>0.76 (0.33-1.81)</td>
</tr>
<tr>
<td>No recreational drug use past 6 months</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Non-injection recreational drug use past 6 months</td>
<td>1.83 (11.26-2.62)</td>
<td>0.77 (0.38-1.56)</td>
</tr>
<tr>
<td>Injection drug use past 6 months</td>
<td>0.61 (0.24-1.53)</td>
<td>0.84 (0.26-2.71)</td>
</tr>
</tbody>
</table>

Note: Adjusted for all variables shown in table, time since HIV diagnosis, ART status, alcohol use, race/ethnicity, education, income, and employment status.

Conclusions

- In a setting with publicly-funded access to physician services, socioeconomic measures neither independently predicted retention nor accounted for the effects of age, drug use, or sexual orientation.
- Care discontinuity was highly predictive of future gaps, suggesting that discontinuous care indicators can be used by healthcare providers to identify participants at-risk of becoming lost to follow-up and intervene before they permanently disengage from care.
- Populations at risk of discontinuous care in our setting included young people, heterosexual men, and non-injecting drug users.
- Given the poor outcomes associated with discontinuous engagement in HIV care including the increased risk of forward transmission, strategic and targeted interventions are needed to better engage and retain such populations along the cascade.

Limitations

- Our findings are subject to potential selection biases given that all had successfully linked to HIV care and were in care at baseline.

Funding: Ontario Ministry of Health and Long-Term Care; Canadian Institutes of Health Research (CIHR) New Investigator award to ANB and TA; CIHR Fellowship award to CK; OHTN Applied HIV Research Chair to CC; OHTN and the Toronto and Western Hospital Foundation Skate the Dream Fund award to JR.

Many thanks to volunteer participants; past and present members of the OCS Governance Committee (Past: Darien Taylor, Dr. Evan Collins, Dr. Greg Robinson, Shari Margolese, Tony Di Pietro, Rick Kennedy, Michael Hamilton, Ken King, Brian Finch, Dr. Ahmed Bayoumi, Dr. Clemon George, Dr. Curtis Cooper, Dr. Troy Greenam, and present: Patrick Cupido (Chair), Anita Benoit, Brockon Bertuzzi, Adriana Bell, Lisa Buchanan, Liseigne Chicha, Tracey Comeray, Brita Haukel, Claire Kendall, Nathan Lachowsky, Joanne Lindsay, John MacTavish, Mark McCullum, Colleen Price, Lori Shults, Rosie Thein); interviewers, data collectors, research associates and coordinators, nurses, physicians, and OHTN staff who support data collection and management. We also acknowledge the Public Health Ontario Laboratories for supporting record linkage with the HIV viral load test database.

Figure 1. Participant Demographics by Initial State after cART Initiation

Patient Characteristics as of 2009

[Graph showing participant demographics by initial state after cART initiation]

Presenting Author: Sandra Gardner < sgardner@ohtn.on.ca >

Sandra Gardner,1,2, Beth Rachlis,1, Lucia Light,1, Janet Raboud,1, Curtis Cooper,1, Claire Kendall,2, Anita Rachlis,2, Mona Loutfy,1, Tony Antoniou3, Jean Bacon,1, Frank McGee,1, Sean B Rourke1, Ann N Burchill1