

Background

- Viral Suppression (VS) is the ultimate goal of HIV care as it improves individual outcomes and decreases HIV transmission
- The universal Test-and-Treat approach, a pillar to *Ending the Epidemic* plan, emphasizes early testing, immediate linkage to care, and rapid treatment initiation to achieve VS
- Implementation of early antiretroviral therapy (ART) initiation (Treatment as Prevention) is crucial as an effective intervention to reduce HIV transmission

Objectives

- To describe the socio-demographic and clinical factors of people living with HIV (PLWH) in Washington, DC who are newly diagnosed with HIV
- To evaluate achievement of Test-and-Treat approach and HIV treatment goals related to retention in care (RIC), ART initiation and VS
- To describe socio-demographic and clinical factors associated with achieving HIV treatment goals among newly diagnosed PLWH

Methods

Study design and eligibility criteria

- Cross-sectional analysis
- Data source: the DC Cohort, an observational longitudinal cohort of PLWH followed from Jan 2011-Mar 2017 at 14 sites in Washington, DC
- Included participants diagnosed within 12 months of enrollment, ≥18 years old with ≥12 months total follow-up in the DC Cohort

Outcome variables

- RIC: ≥ 2 visits or HIV lab results at least 90 days apart, within 12 months of enrollment
- ART initiation: being prescribed ART, by 3 and 12 months after diagnosis
- VS: HIV RNA < 200 copies/mL, by 3 and 12 months after diagnosis

Statistical analysis:

- Descriptive statistics: Chi-square and Fisher's Exact tests for categorical variables and Wilcoxon Rank Sum tests for continuous variables
- Multivariate logistic regression models
 - *A priori* variables: age, sex and race
 - Included variables statistically significant at p < 0.05
 - Most parsimonious model selected

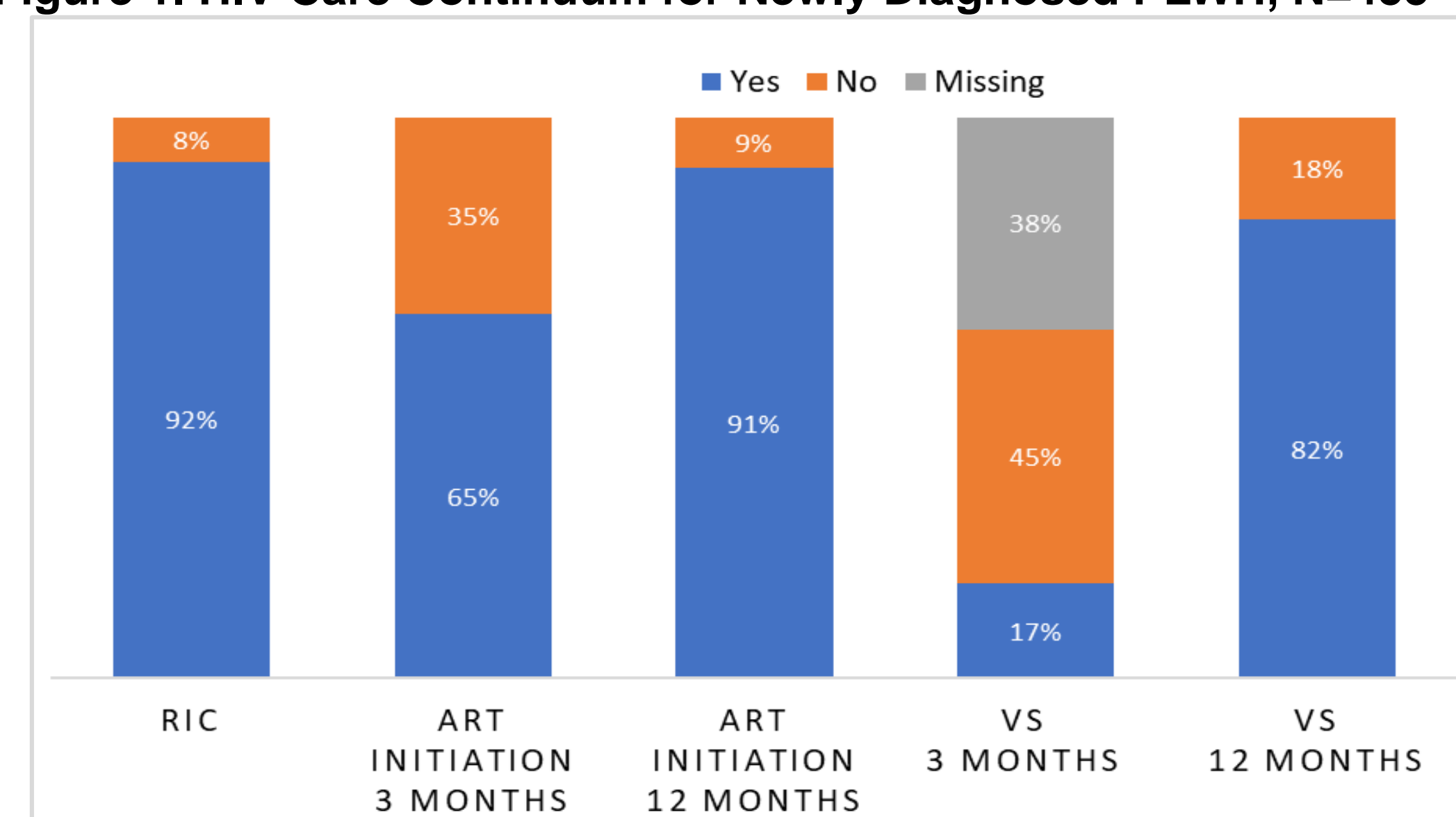
Results

Table 1. Demographic and clinical characteristics*, by RIC status, among individuals newly diagnosed with HIV, DC Cohort, 2011-2016

Characteristic ¹	Total (N=455) N (%)	RIC (N=419) N (%)	Not RIC (N=36) N (%)	p-value
Age, median (IQR)	33.0 (25.0, 45.0)	34.0 (25.0, 45.0)	29.0 (24.5, 43.5)	0.4191**
Current Sex				0.8306†
Male	352 (77.4)	322 (76.9)	30 (83.3)	
Female	95 (20.9)	89 (21.2)	6 (16.7)	
Transgender: male-to-female	6 (1.3)	6 (1.4)	0 (0.0)	
Transgender: female-to-male	2 (0.4)	2 (0.5)	0 (0.0)	
Race/ethnicity				0.1156†
NH Black	313 (68.8)	288 (68.7)	25 (69.4)	
NH White	77 (16.9)	67 (16.0)	10 (27.8)	
Hispanic	47 (10.3)	46 (11.0)	1 (2.8)	
Other/Unknown	18 (4.0)	18 (4.3)	0 (0.0)	
Transmission risk				0.7736†
MSM	273 (60.0)	248 (59.2)	25 (69.4)	
IDU	12 (2.6)	11 (2.6)	1 (2.8)	
Heterosexual	141 (31.0)	132 (31.5)	9 (25.0)	
Perinatal	14 (3.1)	14 (3.3)	0 (0.0)	
Unknown	15 (3.3)	14 (3.3)	1 (2.8)	
Insurance status (baseline)				0.6656
Public	241 (53.0)	224 (53.5)	17 (47.2)	
Private	178 (39.1)	163 (38.9)	15 (41.7)	
Other/Unknown	36 (7.9)	32 (7.6)	4 (0.9)	
Risk factors				
Smoking: ever	183 (40.2)	167 (39.9)	16 (44.4)	0.8553
Substance use: ever	109 (24.0)	100 (23.9)	9 (25.0)	0.9700
Alcohol abuse: ever	108 (23.7)	99 (23.6)	9 (25.0)	0.9563
Median HIV duration in months (IQR)	4.92 (2.3, 7.7)	4.92 (2.3, 7.7)	6.07 (2.2, 8.5)	0.5708**
AIDS diagnosis ²	141 (31.0)	136 (32.5)	5 (13.9)	0.0208*
Nadir CD4 at enrollment (median, IQR)	346 (224, 494)	344 (220, 488)	450 (262, 623)	0.0583**

¹Characteristics measured at the time of enrollment; ²Opportunistic infections and CD4 count <200 cells/mm³ or CD4% <14; *p < 0.05; ** Wilcoxon Rank Sum; † Fisher's Exact Test

Figure 1. HIV Care Continuum for Newly Diagnosed PLWH, N=455



Note: Of the 419 newly diagnosed that were RIC, 279 (66%) had initiated ART 3 months after HIV diagnosis and 385 (92%) 12 months post diagnosis. Among those who initiated ART within 3 months after diagnosis, 66 (33%) were VS in 3 months and 132 (67%) in 12 months. Among those that initiated ART during the first year of diagnosis, 338 (88%) achieved VS in the same time period.

Table 2. Summary of Logistic Regression Analysis for factors associated with RIC, ART Initiation and VS, N=455

Characteristic ¹	RIC aOR (95% CI)	ART Initiation by 3 months aOR (95% CI)	ART Initiation by 12 months ³ aOR (95% CI)	VS by 3 months ⁴ aOR (95% CI)	VS by 12 months aOR (95% CI)
Age (per 10 year increase)	1.07 (0.83, 1.37)	0.96 (0.83, 1.10)	0.73 (0.58, 0.92)*	1.08 (0.88, 1.32)	0.98 (0.83, 1.17)
Sex at Birth (Female)	1.55 (0.61, 3.95)	0.74 (0.45, 1.21)	1.04 (0.45, 2.38)	1.11 (0.56, 2.20)	0.95 (0.53, 1.71)
Race/ethnicity (NH Black)	0.94 (0.44, 1.99)	0.77 (0.49, 1.21)	0.74 (0.33, 1.63)	1.04 (0.58, 1.87)	0.66 (0.37, 1.16)
Substance use (Ever)	-	0.57 (0.36, 0.90)*	-	-	-
HIV duration in months	0.95 (0.86, 1.06)	-	-	-	-
AIDS diagnosis ² (Yes)	2.98 (1.13, 7.86)*	2.58 (1.61, 4.12)*	2.74 (0.91, 8.21)	1.66 (0.84, 3.26)	2.30 (1.18, 4.48)*
Nadir CD4 count (per 50 cell increase)	-	-	0.90 (0.86, 0.95)*	1.07 (1.00, 1.13)*	0.98 (0.94, 1.03)

¹Characteristics measured at the time of enrollment; ²Opportunistic infections and CD4 count <200 cells/mm³ or CD4% <14;

³Model adjusted for Alcohol Abuse *N = 283; *p < 0.05; Abbreviations: aOR = adjusted Odds Ratio; CI = Confidence Interval; NH = Non-Hispanic

Summary of Results:

- Among the 455 newly diagnosed, the median nadir CD4 count was 346 cells/μL (IQR 224, 494) and 31% had a history of AIDS
- 92% were RIC at 12 months after enrollment
- 65% initiated ART by 3 months and 91% by 12 months after diagnosis; 17% were virally suppressed by 3 months and 82% by 12 months post diagnosis
- There were no differences by sex, race, or transmission risk for RIC, ART initiation and VS
- Those with an AIDS diagnosis were more than three times more likely to be RIC (aOR 2.98; 95% CI: 1.13-7.86) and start ART by 3 months (aOR 2.58; 95% CI: 1.61-4.12); they were also almost two times more likely to attain VS by 12 months (aOR 2.30; 95% CI: 1.18-4.48).
- Lower nadir CD4 (aOR 0.90 per 50 cell increase; CI 0.86-0.95) and younger age (aOR 0.73 per 10 year increase; CI 0.58-0.92) were associated with ART initiation by 12 months; however, those with a higher nadir CD4 (aOR 1.07 per 50 cell increase; CI 1.00-1.13) were slightly more likely to achieve VS by 3 months

Strengths and Limitations

- Data reflect PLWH that enrolled in the DC Cohort within a year of diagnosis. Since all participants were linked to care we could not measure the first parts of the care continuum
- With approximately 350 new HIV cases per year in DC, this sample size is likely representative of new HIV diagnosis city-wide

Conclusions

- Although the majority of newly diagnosed PLWH were RIC, fewer started ART or achieved VS in a timely manner.
- With a large proportion of our sample having an AIDS diagnosis at enrollment, we illustrate the ongoing challenge of late HIV diagnosis in DC.
- Those with AIDS at diagnosis were more likely to initiate ART within the first 3 months.
- Same-day initiation of ART is fundamental among the newly diagnosed regardless of the patient's HIV stage at diagnosis. As Test-and-Treat strategies scale up, VS should be attained more promptly among all PLWH, not only among those with an AIDS diagnosis.