1042

A Multistate Analysis of Longitudinal Care Outcomes Among People Newly Linked to HIV Care in Missouri

Aditi Ramakrishnan[1,2], Aaloke Mody[1,2], Daniel Vo[1], Ernie-Paul Barrette[1], Rachel M. Presti[1], William G. Powderly[1,2], Anne Trolard[2], Catherine Schwarz[1], Elvin H. Geng[1,2], Lindsey M. Filiatreau[1,2]

[1]Division of Infectious Diseases, Washington University in St. Louis, St. Louis, MO, USA, [2]Institute of Public Health, Washington University in St. Louis, MO, USA

BACKGROUND

- Traditional metrics of retention in HIV care fall short of quantifying the dynamic process of engagement and disengagement from care over time.
- Multistate analytic approaches can reveal more nuanced care trajectories, providing stronger evidence to improve service delivery.
- We conducted a multistate analysis to comprehensively represent longitudinal outcomes in Missouri, an Ending the HIV Epidemic priority state.

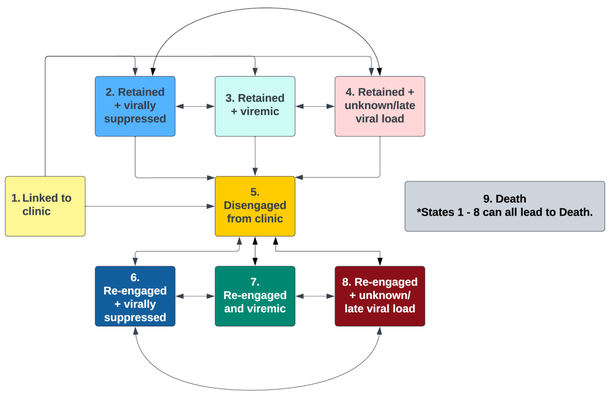
METHODS

- **Setting:** A large Ryan White-funded academic HIV primary care clinic in St. Louis, Missouri.
- **Population:** People living with HIV ≥ 18 years who were newly or presumed newly linked to care at the clinic between January 1, 2015 – March 15, 2020.
- **Data:** Electronic health record clinical, lab, and visit data.
- **Base State Definitions**:

Linked to clinic	1st visit during the observation period
Disengaged from clinic	> 90 days late for a scheduled clinic appointment
Retained at clinic	< 90 days late for a scheduled clinic appointment
Re-engaged at clinic	Clinic appointment following disengagement
Virally suppressed	Viral load < 200 copies/mL ≤ 200 days
Viremic	Viral load > 200 copies/mL ≤ 200 days
Unknown/late viral load	Gap in viral load measurement > 200 days

- **Analyses**:
  - Nonparametric multistate techniques were used to estimate the prevalence of *9 mutually exclusive and exhaustive states* describing retention and viral load status over 3 years following linkage to care (**Fig 1**).

Figure 1. Conceptual Model of HIV Care States based on Retention and Viral Suppression Status



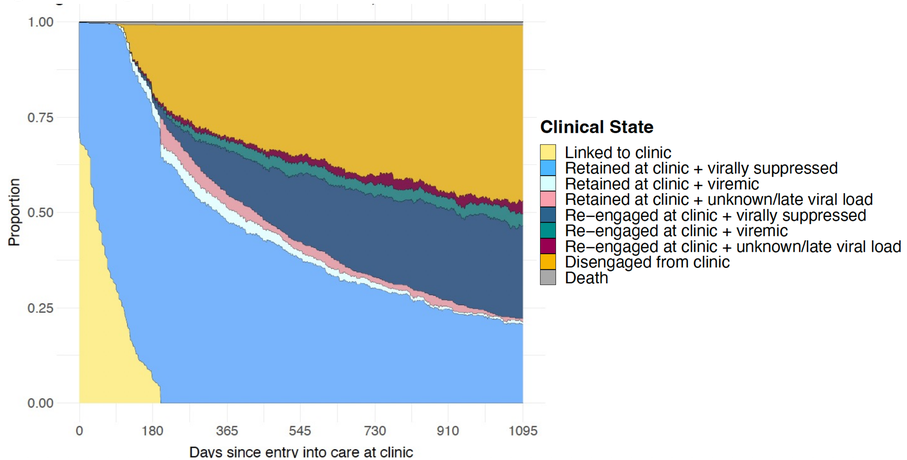
Three years following linkage to clinic, 53.1% were in care, of whom 30.8% had previously disengaged at least once.

Disengagement and re-engagement are *high* in the first year following linkage to care, with uncertain outcomes among those who do not re-engage.

RESULTS

- 1,110 patients were newly linked to the clinic during the observation period, contributing 2255.4 person-years of follow-up.
- Median age was 34 years (IQR 25-47), 229 (20.6%) were 18-24 years, 865 (77.9%) were male, 745 (67.1%) identified as non-Hispanic Black, and 705 (63.5%) identified as MSM at entry.
- Following linkage to clinic, at **1 year**, 70% (95% CI: 67.8, 72.3) were in care (54.8% continuously retained, 15.2% re-engaged). At **2 years**, 59.5% (95% CI: 60, 62.3) were in care (33% continuously retained, 26.5% re-engaged, **Fig 2**).

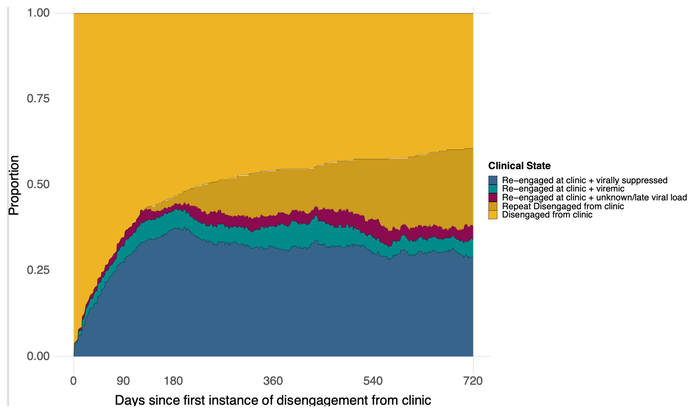
Figure 2. Longitudinal HIV Care Outcomes in St. Louis, Missouri between 2015 - 2020



RESULTS

- Among those in care at 3 years, 92.7% of those continuously retained were virally suppressed compared to 78.7% of those who had re-engaged in care.
- Although 69.4% were retained and virally suppressed at 6 months, 29.2% and 46.2% disengaged at 1- and 3 years, respectively.
- Among those disengaged, 44.8% (95% CI: 41.8-47.8) re-engaged and 37.6% (95% CI: 34.5-40.4) were virally suppressed at **6 months**; 36.6% (95% CI: 32.6-40.7) re-engaged and 28.4% (95% CI: 24.5-32.3) were virally suppressed at **2 years** from disengagement (**Fig 3**).

Figure 3. Re-engagement Outcomes following Disengagement



- Among those disengaged, 54.5% (95% CI: 51.3-57.5) had **ever** re-engaged and 13.1% (95% CI: 10.7-15.6) experienced repeat disengagement **1 year** from initial disengagement.

CONCLUSION

- While initial engagement is strong, disengagement, re-engagement, and viremia over time are far more common than previously reported in Missouri.
- Multistate analyses can strengthen our understanding of such tenuous timepoints in the care continuum, highlighting important targets for optimizing lost-to-care and re-engagement services to end the HIV epidemic.

ACKNOWLEDGEMENTS

We sincerely thank the patients who contributed to this study. In addition, we are grateful to the Washington University in St. Louis Infectious Diseases clinic for their support.

aditir@wustl.edu