Patterns of engagement after restarting antiretroviral treatment in South Africa

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BACKGROUND

- As cycling in and out of HIV care over time becomes the norm, more than two-thirds of people commencing antiretroviral therapy (ART) are now restarting rather than initiating treatment for the first time*
- People re-engaging with ART are at greater risk of subsequent disengagement and poor treatment outcomes.
- Patterns of observed engagement behaviour may be valuable to meaningfully segment people returning to care and inform service delivery.

METHODS

- Routine health data was obtained from the Western Cape Provincial Health Data Centre, South Africa. The cohort included individuals:
  - Aged ≥15 years
  - Who initiated ART under treat-all guidelines (≥1st September 2016)
  - Who sought care in Khayelitsha or Gugulethu (low-resource, high-HIV-burden settings)
- Group-based trajectory-modelling is a form of latent class analysis using observed data to segment populations into discrete subgroups. We identified subgroups with distinct longitudinal engagement patterns over 1 and 5 years after restart, in people returning to care after a substantial ART treatment interruption.
- Subgroup associations with both treatment success and individual characteristics were assessed with logistic regression.

Measuring engagement

Engagement was measured as a binary variable (in care/ out of care) each month after ART start

Disengagement: individuals were considered disengaged if they had a treatment interruption >90 days (between recorded and expected visits, based on previous ART refill duration) *OR* were lost to follow-up (no visit within 180 days of database closure on 30th Sep 2022). Interruptions started on the expected visit date.

Re-engagement: individuals were considered re-engaged on the date they received an ART refill after an interruption.

Treatment success

Viral suppression: viral load ≤1000 copies/mL at 5 years (window 12 months, missing result considered unsuppressed).

70% of people who restart ART will disengage again in 5 years

Engagement varies on return to care: people need **differentiated service delivery** options when restarting ART

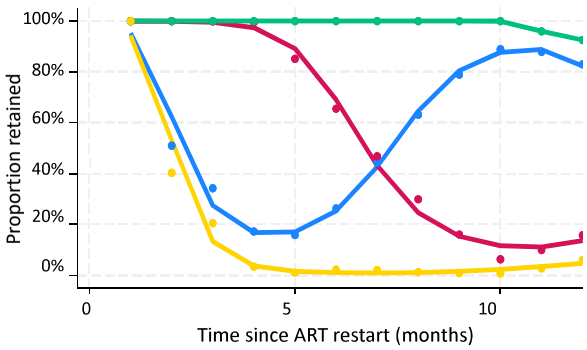
RESULTS

Cohort: 68,888 people on ART: median age of 30 [IQR 25-37] | 69% female.

66% interrupted treatment at some point in their follow-up (n=45,310) | 34% were continuously in care (n=23,578)

Patterns of engagement over 1 year from restart

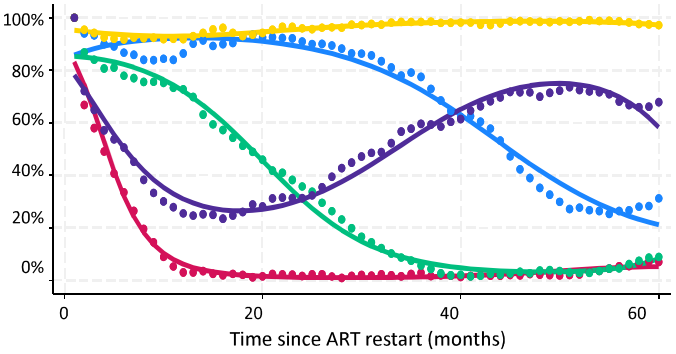
in 22,646 people who had ≥1 years of follow-up after restart



Subgroup name	Prevalence (n [%])
Optimal retention	12,021 [52.08%]
Early drop out	4155 [18.35%]
Delayed drop out	4778 [20.10%]
Early drop out and return	1692 [7.47%]

Patterns of engagement over 5 years from restart

in 2150 people who had ≥5 years of follow-up after restart



Subgroup name	Prevalence (n [%])	Odds of suppression adjOR [95% CI]
Optimal engagement	651 [30.28%]	Ref
Rapid disengagement	534 [24.84%]	0.09 [0.04-0.09]
Early disengagement	341 [15.86%]	0.11 [0.05-0.22]
Delayed disengagement	263 [12.23%]	0.16 [0.10-0.29]
Early disengagement with return	361 [16.79%]	0.61 [0.39-0.97]

- Subgroups were similar in age, sex, comorbidities, baseline CD4 count, and duration on treatment, with no variables strongly predictive of subgroup membership.

CONCLUSIONS

- Most (70%) returning to care after a substantial treatment interruption disengaged again within 5 years from restart.
- There was a high rate of early drop out: 48% disengaged within the first year after return.
- People restarting ART have different patterns of engagement, strongly associated with treatment success.
- Each subgroup likely has different needs to maintain engagement and treatment success
- With further exploration, these patterns may be useful to help target interventions to subgroups with similar engagement behaviours, and inform the development of differentiated service delivery for people returning to care

ACKNOWLEDGEMENTS

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*Euvrard J, Timmerman V, Keene CM, et al. The cyclical cascade of HIV care: Temporal care engagement trends within a population-wide cohort. PLoS Med. 2024;21(5):e1004407. doi:10.1371/journal.pmed.1004407

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