Estimating retention in HIV care using data harmonization approaches: a longitudinal cohort study in rural KwaZulu-Natal, South Africa

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BACKGROUND

- **Retention in care (RIC)** and sustained viral suppression are key program indicators and prerequisites to achieving good health for people with HIV
- Programmatic estimates of these indicators are susceptible to bias from missingness (e.g. missed visits), poor record keeping and transfers and losses from care
- We used a combination of clinical and population-based data from AHRI demographic and health surveillance system (DHSS) **to examine RIC among resident individuals aged ≥15 years who initiated ART between 2013 and 2017 in rural KwaZulu-Natal, South Africa**

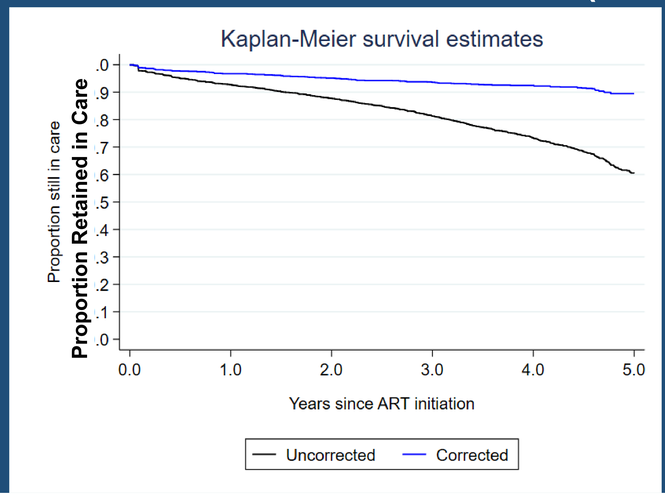
METHODS

- Individuals aged ≥15 years who initiated ART between 2013 and 2017 and resident in the DHSS in 2017
- Individuals were considered retained if they had a clinic visit recorded in the antiretroviral treatment database (TIER.Net) in the past 6 months, or were recorded as having transferred out
- Kaplan Meier methods used to estimate RIC based on TIER.Net alone
- Estimates of RIC corrected using the method by Geng et al, [1] to account for poor record keeping or clinic transfers
- We triangulated data from two additional sources:
  - ART drug levels and viral load collected during annual anonymous HIV serosurvey in the DHSS [2]
  - Viral load data from a community-based multimorbidity study (Vukuzazi) [3]

Corrected estimates of retention

- Individuals were considered still in care if they had detectable ART drug levels or a suppressed viral load
- Individuals were considered out of care if no detectable drug levels or viral load was unsuppressed
- We used inverse probability weighting to adjust for nonresponse in the DHSS specimen collection

Five-year HIV retention in care rates with **standard health information system data** were **60.4% (95%CI 57.8-62.9%)**. When household surveys were used to confirm virologic suppression and ART drug levels, **population-based retention in care rates increased to 89.5% (87.4-91.6%).**



RESULTS

- 3202 individuals aged ≥ 15 years were still resident in the DSS in 2017
- 79% were women; median age 25 years (IQR 30, 39)

	Male n=671 (%)	Female n=2531 (%)	Total N= 3202 (%)
Age at ART initiation			
<25	70 (10.4)	724 (28.6)	794 (24.8)
25-34	257 (38.3)	1019 (40.3)	1276 (39.9)
35-44	203 (30.3)	450 (17.8)	653 (20.4)
≥45	141 (21.0)	338 (13.4)	479 (15.0)
Year of ART initiation			
2013	148 (22.0)	532 (21.0)	680 (21.2)
2014	138 (20.6)	620 (24.5)	758 (23.7)
2015	215 (32.0)	820 (32.4)	1035 (32.3)
2016	150 (22.4)	512 (20.2)	662 (20.7)
2017	20 (3.0)	47 (1.9)	67 (2.1)

Uncorrected Retention in TIER.Net

- Of the 3202 individuals who initiated ART & based on data documented in TIER in 2019:
  - 2350 (73.4%) were still in care
  - 845 (26.4%) were lost to follow up
  - 7 (0.2%) had died

Corrected estimates of retention

- Amongst the 845 who were lost from care
  - 400 had participated in the serosurvey or Vukuzazi
  - 264 had DBS tested for viral load, of which 107 also had drug levels ascertained
- 37/107 (34.6%) had evidence of drug metabolites
- 137/264 (51.9%) had suppressed viral load
- Overall, 156/264 (59.0%) had either evidence of drug metabolites or viral load suppression in their last DBS, so considered to still be in care

CONCLUSION

- Current health information systems (TIER.Net) appear to vastly underestimate RIC for people with HIV on ART
- Implementing a National National Electronic Health Record System and/or upgrading the TIER.Net system to include internet will facilitate cross clinic communication
- Data systems strengthening is needed to improve patient care and promote more valid estimates of key clinical indicators to optimize allocation of resources

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