Usage Patterns and Outcomes in a Large Community ART Programme in South Africa

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BACKGROUND

- There is little data on long-term implementation and clinical outcomes for people living with HIV (PLHIV) in differentiated antiretroviral therapy (ART) delivery programmes.
- We aimed to quantify referral rates, usage patterns and clinical outcomes among patients on first-line ART in a community ART programme, within the Centralized Chronic Medicines Dispensing and Distribution (CCMDD) programme, in South Africa over 3.5 years.

METHODS

- We performed a retrospective cohort analysis using de-identified data from 56 public clinics in KwaZulu-Natal between October 2016 and March 2020.
- We measured referral rates over time among those eligible for community ART.
- Among those referred, we characterized patterns of community ART usage after referral using group-based trajectory modelling (GBTM).
- We used survival analysis to measure the association between community ART usage and loss-to-care (no visit for ≥365 days) and logistic regression with generalized estimating equations to measure the association with viraemia (≥50 copies/mL). Varying usage of community ART following referral allowed us to perform the analysis using only data from those referred.

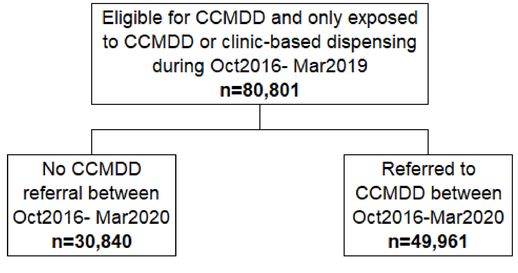

Figure 1: **Flow diagram of the number of PLHIV eligible and referred for community-based ART**

In a cohort of 80,000 PLHIV eligible for community ART, 62% were referred. 42% remained consistently in the program after referral.
Loss-to-care was lower and viral suppression similar among those remaining in community ART compared to those who moved back to clinic-based care after referral.

RESULTS

- Median age was 36 years, 70% were female and median follow-up time was 22 (IQR: 13-31) months.
- 49,961 (61.8%) were referred after a median of 6 (IQR 2-13) months from first eligibility.
- After referral, time spent in community ART varied (Figure 2); 42% remained consistently in community ART, 15% returned to clinic-based care and the remaining 43% oscillated between.
- Following referral, the incidence of loss-to-care was 3.93 (95% confidence interval (CI): 3.71-4.15) per 100 person-years during periods of community ART usage compared to 5.75 (95% CI: 5.28-6.25) during clinic-based care.
- In multivariable models, community ART usage was associated with a 36% reduction in the hazards of loss-to-care (adjusted hazard ratio (aHR): 0.64 [95% CI: 0.57-0.72]), Table 1.
- The proportion of patients who became viraemic after first community ART referral was 5.2% A 10% increase in time in community ART was associated with a 3% reduction in odds of viraemia (adjusted odds ratio (aOR): 0.97 [95% CI: 0.95-0.99]), Table 2.

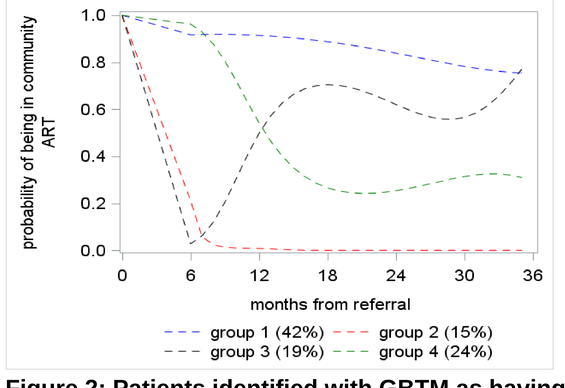

Figure 2: Patients identified with GBTM as having common community ART usage trajectories

Table 1: **Association between community ART exposure and loss-to-care (N=40,203)**

	aHR (95% CI)
Age at referral (years)	0.98(0.97-0.98)
Gender (Female vs Male)	0.72(0.65-0.79)
Years on first-line ART at referral	0.93(0.91-0.95)
Year of eligibility: 2016 vs 2018/2019	0.64(0.48-0.85)
2017 vs 2018/2019	0.84(0.75-0.93)
Exposure to community ART: Yes vs No	0.64(0.57-0.72)

Table 2: Association between community ART exposure and viraemia (N=35,103)

	aOR (95% CI)
Age at referral (20-29 vs 60+)	1.59(1.04-2.41)
(30-39 vs 60+)	1.14(0.93-1.39)
(40-49 vs 60+)	1.06(0.86-1.31)
(50-59 vs 60+)	1.15(0.93-1.42)
Gender (Female vs male)	0.78(0.71-0.86)
Time on ART (years)	1.02(1.0-1.04)
Months since last viral load	1.02(1.01-1.03)
% exposure to community ART in last 12 months (10% increment)	0.97(0.95-0.99)

CONCLUSIONS

- Community ART usage patterns vary considerably, while long-term clinical outcomes were good. Promoting consistent community ART usage may reduce clinic burden and the likelihood of patients being lost to care, whilst sustaining viral suppression.

ADDITIONAL KEY INFORMATION

The authors have no conflicts of interest to declare.

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