SURVIVAL AFTER HIV INFECTION IN THE ERA OF DECENTRALIZED DRUG DISTRIBUTION MODELS

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BACKGROUND

- Since 2004, USAID Nigeria has supported the provision of antiretroviral therapy (ART) to 633,888 people living with HIV (PLHIV) in Nigeria through PEPFAR.
- Six decentralized drug distribution (DDD) ART delivery models were implemented in Akwa Ibom and Cross River states to improve continuous access to treatment for PLHIV, with the goal of achieving long-term retention in care and viral suppression.

OBJECTIVES

- To estimate retention probabilities for the Six DDD models.
- To examine factors associated with retention.
- To describe the proportion of patients who are retained in HIV and compare the average patient duration on ART between the DDD models.

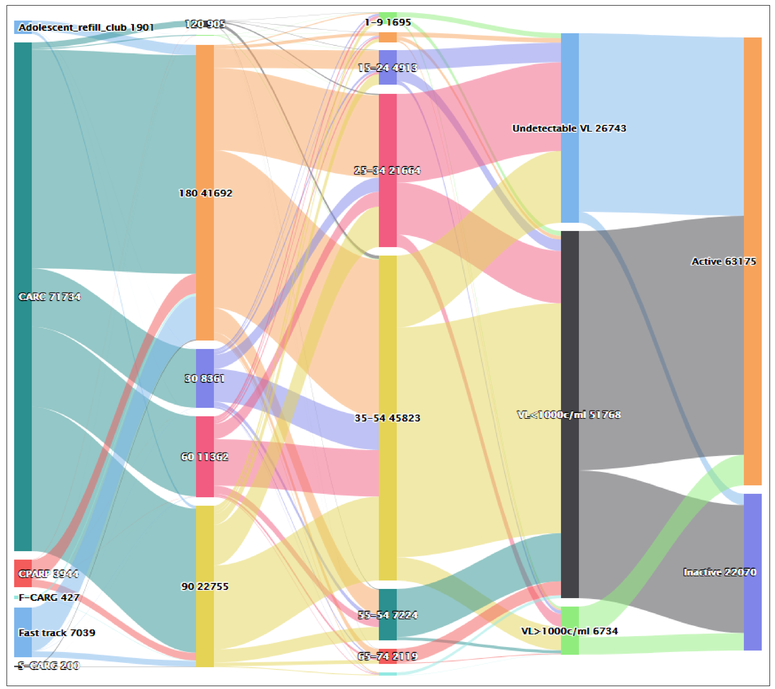
METHODS

- A retrospective analysis of 85,245 treatment patients who began ART between October 2001 and December 2020 was conducted.
- Patient data was extracted from electronic record systems and anonymised.
- All patients on first-line ART were included. Retention was defined as being alive and remaining on ART after initiation for at least 12 months after starting ART.
- While eligibility to all DDD models was restricted to stable patients, Community Pharmacy ART Refills Program (CPARP), Community ART Refill Clubs (CARCs), Family-Centred ART Refills Groups (F-CARGs), Fast-track clinic, and Adolescents Refill Clubs (ARCs) were all expanded to include stable and unstable patients after the onset of COVID-19. The Self-forming Community ART Refill Groups (S-CARG) model remained open only to stable patients.
- The Kaplan-Meier method was used to estimate retention probabilities, and Cox Proportional Hazards model was used to examine factors associated with retention.

S/N	Table 1: DDD Models	Description
1	Community Pharmacy ART refills Program (CPARP)	• Clients (stable and unstable) are devolved to private sector pharmacies (as satellite ART refills pharmacies) in the communities to continue ART refills, care, and support services. • This is a health provider led DDD model which provides convenient/flexible client pick up time, reduced waiting time, in line with legal & ethical guidelines, and full support of stakeholders (GON regulators, NEPWHAN and professional associations.
2	Community ART Refill Clubs (CARCs)	This is a health provider-led community ART Refill DDD model for both stable and non-stable ART clients • from hard-to-reach communities and • not willing to continue an institution-based health care at the time.
3	Family-Centred ART Refills Groups (F-CARGs)	• Family members rotate in collecting medications at the facility for all members - for both stable and non-stable ART clients.
4	Self-forming Community ART Refill Groups (S-CARGs)	• Group members rotate in collecting medications at the facility for all members that have met certain prequalification criteria - for ONLY stable ART clients.
5	Fast-track clinic/viral load services	• Fast-track clinic / viral load assessment services is a facility based DSD model where unstable ART clients and those with unknown VL status are provided a quick access to clinical review services and viral load sample collection through facilitation by a fast-track focal person in the health facility. • All clients eligible for fast-track clinic/VLservices are identified through sorting and color coding of their hospital folders and registration in the health facility fast-track clinic/VL services register which is updated when fast-track clinic/VL services is provided to the clients
6	Adolescents Refill Clubs (ARCs)	• Adolescents and young persons on ART are devolved to the adolescent-friendly clubs of their choice to continue ART refills, care and support services while maintaining referral linkage to the health facility (hub site) for periodic clinical and laboratory reviews as required. • This is health provider led DDD model.

Overall **retention probability** was 95%, 72% and 62% at 12, 24 and 36 months, respectively. **The median retention time** in the CPARP model was 73 months (95%CI: 71-74) compared to 49, 47, 18, 16, and 14 months in the CARC, Fast-track, ARC, F-CARG, and S-CARG models, respectively, **log-rank test (p<.001).**

Figure 1: Sankey diagram, depicting flow between client's demographic and clinical characteristics



RESULTS

- Of the total sample, 63,175 (74%) remained on treatment and 13,800 (16%) experienced treatment interruption/LTFU.
- Median age at ART initiation was 39 years (IQR:32-47) and 69% of the cohort was female.
- CARC DDD model [Hazard Ratio (HR):0.70 (0.66-0.73), ref: ARC], CPARP [HR:0.56 (0.53-0.60), ref: ARC], Fast-track [HR: 0.70 (0.79-0.83), ref: ARC], female sex [HR:0.96 (0.94-0.97), ref: male], and 15+ years Age [HR:0.80 (0.77-0.84), ref: <15 years] were associated with long-term retention; while unemployed Occupation [HR:1.10(1.08-1.13), ref: employed] and senior secondary Education [HR:1.20 (1.14-1.26), ref: junior secondary] were associated with short-term retention.

CONCLUSIONS

- Decentralized Drug Delivery models were associated with improved rates of continuity of ART treatment in a large real-world cohort in Nigeria.
- Community pharmacy ART refills were associated with very high levels of continued retention. Analysis of short and long-term retention across service delivery models can help program managers refine and tailor intervention methods accordingly.

Figure 2: Distribution of patient duration on ART across the DDD Models

