Retention in care after early enrolment into differentiated service delivery (DSD) models for antiretroviral treatment: a case for policy change in Zambia

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BACKGROUND

- Attrition from HIV treatment is highest during patients' first 6 and 12 months on ART, for both naïve and non-naïve initiators.
- Differentiated service delivery (DSD) models are a key strategy for improving ART retention by making treatment easier for patients, e.g. by reducing the required number of clinic visits or bringing services closer to patients' homes.
- In most sub-Saharan African countries, patients only become eligible for enrolment into DSD models after at least 6 or 12 months' experience on ART, systematically excluding patients in their first 6 or 12 months on ART..
- Taking advantage of variation in clinics' compliance with guidelines, we used routine data from the national Zambian cohort to describe outcomes of patients enrolled in DSD models early (after <6 or <12 months following ART initiation).

Patients enrolled in differentiated service delivery models earlier than guidelines recommended (after <6 or 12 months on ART) were retained in care as well as those with ART >12 months

DSD models assessed

- **Adherence groups:** community adherence groups, rural/urban adherence groups
- **Extended clinic hours:** clinic access before/after hours or weekends, including scholar models
- **Fast-track:** procedures to accelerate dispensing at clinics
- **Home ART delivery**
- **Multi-month dispensing:** (providing 6 months of ARV medications at a time)
- **Community medication pick-up points:** central dispensing units, retail pharmacies, community distribution points, health posts, mobile ART)

METHODS

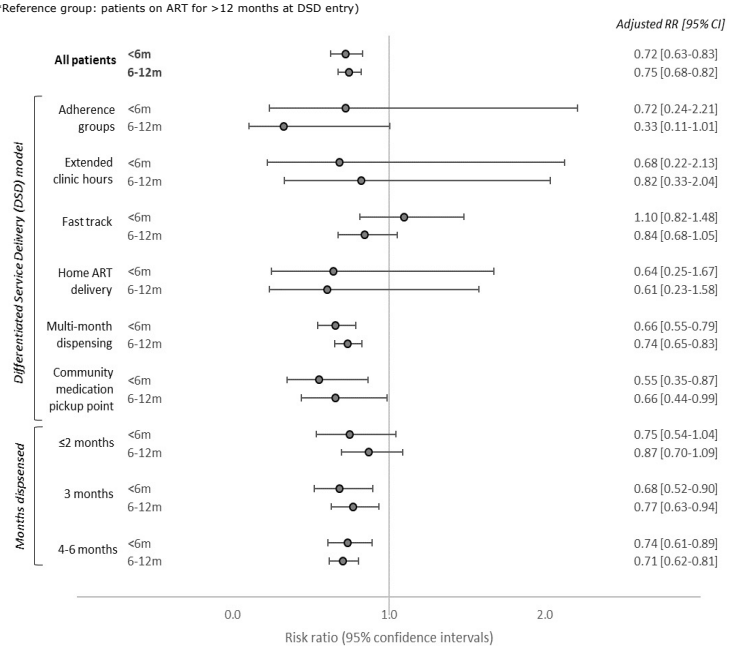
- Data from Zambia's national electronic medical record system (Smartcare) for patients aged ≥16 enrolled in DSD models from October 2019-March 2020 and followed until December 2020.
- Compared 12-month loss to follow-up (LTFU) among patients enrolled in a DSD model after ≥12 months on ART to those enrolled after just <6 or 6-12 months on ART.
- Loss to follow up was defined being inactive or lost to care 9-15 months since DSD entry
- Exclusions: patients on second-line ART, patients with viral failure in the 6 months before or 3 months after DSD enrolment
- Assessed risk of LTFU using a log binomial regression model, adjusting for age, sex, urban/rural status, and ART dispensing duration.

Table 1. Distribution into DSD models by time on ART at DSD entry

DSD model	Total (N=87,761)	≥12 months on ART (N=78,022)	6-12 months on ART (N=6,630)	<6 months on ART (N=3,109)
Adherence groups	5% (4,150)	5% (3,940)	2% (147)	2% (63)
Extended clinic hours	1% (503)	1% (403)	1% (57)	1% (43)
Fast-track	39% (33,868)	41% (31,716)	24% (1,563)	19% (589)
Home ART delivery	1% (525)	0% (388)	1% (69)	2% (68)
Multi-month dispensing	49% (42,790)	47% (36,415)	66% (4,378)	64% (1,997)
Community medication pick-up points	7% (5,925)	7% (5,160)	6% (416)	11% (349)

Figure 1. Adjusted relative risk of LTFU within 12 months of DSD enrolment for patients enrolled early (<6 or <12 months) after ART initiation*

*Reference group: patients on ART for >12 months at DSD entry)



RESULTS

Cohort description (Table 1)

- 87,761 adults enrolled in DSD models during the study period: most (89%) had been on ART >12 months at DSD model enrolment; 8% 6-12 months; and 4% <6 months
- Majority female (64%) and urban (78%), median (IQR) age 43 years (IQR 35-50)
- Most patients were in the fast-track (39%) or multi-month dispensing (49%) DSD models.
- Patients enrolled in DSD models after <6 or 6-12 months on ART were younger (56%-59% <40 years) than those on ART >12 months (65% >40 years).
- Patients enrolled in DSD models early were more likely to be in models using multi-month dispensing (64%-66%) than those on ART>12 months (47%).

Outcomes (Figure 1)

- Patients enrolled in DSD models early were **25-28% less likely to be lost to follow-up** than those on ART >12 months on ART (adjusted risk ratio (aRR) 0.72; 95% confidence interval (CI) 0.63-0.82) for <6 months ART and aRR 0.75; 95%CI 0.68-0.82 for 6-12 months ART)
- This result held **across all DSD model types**, with the exception of fast-track.
- Patients enrolled into DSD models early were less likely to be LTFU than those on ART >12 months at DSD entry **across all dispensing durations**:
  - **≤2 months**: 13%-25% less likely to be LTFU
  - **3 months**: 23%-42% less likely to be LTFU
  - **4-6 months**: 29%-26% less likely to be LTFU

LIMITATIONS AND CONCLUSIONS

- Patients enrolled early (<6 and <12 months after ART initiation) into DSD models are likely different than other patient groups, as providers may be more likely to offer early enrolment to patients believed to be at lower risk of LTFU or who live farther from the clinic.
- Despite this, our study demonstrates that **eligibility for lower-intensity DSD models should be considered for at least some** patients before they reach 6-12 months on ART.
- Early DSD model eligibility may be one component of a solution to high loss to follow up rates during the early ART period.

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