"UNDERSTANDING PATIENT MOBILITY IN HIV POSITIVE ADULTS ACROSS MULTIPLE CLINICS IN ZAMBIA"

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Abstract 1091

BACKGROUND

- Because HIV care is lifelong and mobility is a normal part of livelihood and social practices in Africa, transfer of care across facilities is an expected part of the natural history HIV treatment.
- However, because no unique patient identifiers are used and patient data are not typically transferred to new facilities (1), many patients considered lost to follow up (LTFU) at one facility are reportedly accessing care in another – so-called "silent transfers".
- Further, rapid scale up of clinics offering ARV services and now differentiated models of care (2) makes tracking retention in HIV care an increasing challenge to national programmes.
- Existing research suggests that re-initiation of ART among patients who transfer is often delayed, leading to antiretroviral therapy (ART) treatment interruptions and compromising its positive impact on life expectancy for people living with HIV infection (PLHIV) (1,3).
- Overall, silent transfers are poorly understood; more evidence is needed to inform how to optimize receipt of patients previously on treatment elsewhere (3).

Figure 1. Study setting: Zambia



METHODS

- **Setting:** Centre for Infectious Disease Research in Zambia (CIDRZ) is a Zambian NGO that supports HIV care and treatment services within 607 Ministry of Health clinics across 4 of 10 provinces in Zambia with support from PEPFAR and CDC.
- **Population:** The contemporary population of adults (≥18 years) with a clinical encounter while on ART or pre-ART at a CIDRZ-supported clinic in the 24 months before the evaluation (08/2013– 07/2015), LTFU, and found to be alive and reporting care at a new facility.
- **Data:** Pharmacy refill and clinical information were obtained through the electronic medical record system used in routine care. Using pharmacy and clinic records, we calculated the days between the last pharmacy pickup at the original clinic and first date of ART dispensation at the new clinic of patient transfer.
- **Analyses:** Using a Kaplan Meier curve, we plotted the incidence of ART re-initiation over transfer time. With a Cox proportional hazards model, we assessed associations between patient-level characteristics and rate to ART re-initiation. With a multilevel logistic regression model, we assessed patient-level characteristics associated with same-day initiation, accounting for site-level clustering.

OBJECTIVES

1. Among the population of silent transfers, understand the reasons for non-verification of transfer, and describe clinical characteristics among the verified patients.
2. Among the verified silent transfer previously on ART, characterize incidence of ART re-initiation between clinics.
3. Among verified silent transfers previously on ART, assess for transfer characteristics associated with rates to ART re-initiation.
4. Among all verified silent transfers, assess patient-level and site-level predictors of same-day ART initiation at new clinics.

RESULTS

Figure 2. Flowchart of Silent Transfers.

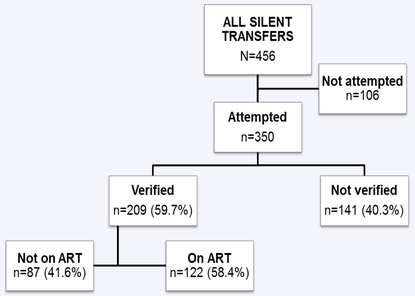


Table 1. Demographic and clinical characteristics of silent transfers.[1]

Patient Characteristic	Study Population: All silent transfers (n=456)	All verified transfers (n=209)	ART only (n=122)
Age	34.3 (29.8-40.0)	34.3 (28.9-40.1)	35.6 (30.0-43.3)
Sex			
Male	171 (37.5)	59 (28.2)	37 (30.3)
Female	285 (62.5)	150 (71.8)	85 (69.7)
Education			
None	22 (4.8)	11 (5.4)	5 (4.2)
Lower-mid basic	167 (36.6)	103 (50.2)	62 (52.5)
Upper basic/Secondary	208 (45.6)	80 (39.0)	44 (37.3)
College/University	52 (11.4)	11 (5.4)	7 (5.9)
Year of enrollment			
2004-2006	12 (2.6)	4 (1.9)	4 (3.3)
2007-2009	60 (13.2)	31 (14.8)	28 (23.0)
2010-2012	103 (22.6)	43 (20.6)	36 (29.5)
2013-2015	281 (61.6)	131 (62.7)	54 (44.3)
Enrollment CD4 count[2]	272 (139-445)	302 (172-486)	246 (139-378)
WHO stage at enrollment[3]			
Stage 1	203 (44.5)	97 (46.4)	50 (41.0)
Stage 2	80 (17.5)	43 (20.6)	26 (21.3)
Stage 3	98 (21.5)	43 (20.6)	35 (28.7)
Stage 4	18 (4.0)	6 (2.9)	6 (4.9)

1. All values are in n (%) or Median (IQR)
2. 129 (28.3%) missing values for all, 74 (35.4%) missing for verified, 36 (29.5%) missing for ART only
3. 57 (12.5%) missing values for all, 20 (9.6%) missing for verified

RESULTS

- Of the non-verified transfers (n=141), **78.7% (n=111) were unable to be identified by name nor ART ID** in paper or electronic records.

Table 2. Clinical characteristics of verified silent transfers.*

Characteristic	All transfers (n=209)	ART only (n=122)
Province of origin clinic		
Lusaka	48 (23.0)	26 (21.3)
Eastern	51 (24.4)	32 (26.2)
Western	54 (25.8)	32 (26.2)
Southern	56 (26.8)	32 (26.2)
Cross Provincial Transfer	26 (12.4)	19 (15.6)
Official transfer *	53 (25.6)	45 (37.2)
Received new HIV test	110 (53.7)	41 (34.2)
Same ART ID new site	86 (41.2)	79 (64.8)
Same day initiate	88 (42.1)	55 (45.1)

* Official transfers had letter of transfer found in patients records at new clinic

Figure 3. Cumulative ART re-initiation between appointments, previous ART initiates (n=122).

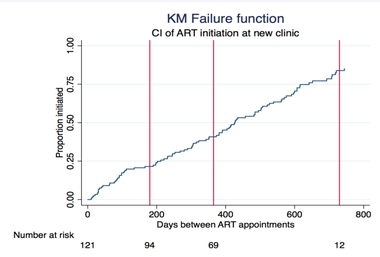


Table 3. Predictors of ART re-initiation, previous ART initiates (n=120). Cox proportional hazards model

Transfer Characteristic	Adjusted: Hazard Ratio (95% CI)	p-value
Age	0.99 (0.97, 1.01)	0.422
Female	1.25 (0.79, 1.97)	0.34
Time on ART (years)	1.00 (0.92, 1.09)	0.93
Official Transfer	0.88 (0.57, 1.36)	0.57
Cross provincial transfer	0.57 (0.35, 0.94)	0.03*

- **Key results Figure 3:** Kaplan Meier estimates of cumulative ART re-initiation at new clinics revealed that 22% (n=27) of ART verified silent transfers had re-initiated ART by 6 months since last scheduled pharmacy pickup date; this proportion increased steadily over time, reaching 43% (n=52) by 1 year and 90% (n=109) by 2 years since last ART pickup.
- **Key results Table 3 and Figure 4:** Controlling for age, sex, official transfer and time on ART, patients who transfer cross-provincially (i.e. Southern province to Eastern, Lusaka to Western province, etc.) have slower rates of ART re-initiation compared to patients who transfer to clinics within the same province as original clinic.

RESULTS

Figure 4. Cumulative ART re-initiation between appointments by cross-provincial transfers, previous ART initiates only (n=122).

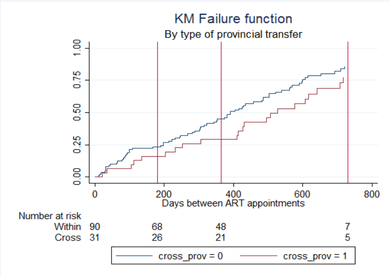
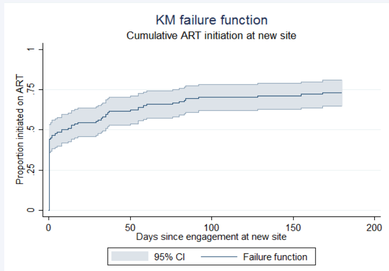


Table 4. Results of Multilevel mixed-effects logistic regression evaluating predictors of same-day ART initiation at new clinic amongst patients previously initiated on ART (n=120).

Characteristic	Adjusted: Odds Ratio (95% CI)	p-value
Age	0.97 (0.91, 1.03)	0.36
Female	1.52 (0.50, 4.66)	0.46
Time on ART (years)	0.94 (0.75, 1.19)	0.61
Official transfer	3.01 (0.87, 10.42)	0.08
CD4 previously performed	0.35 (0.10, 1.20)	0.10
ICC	0.37	

Figure 5. Cumulative ART re-initiation at new clinic from time of re-engagement at new site, previous ART initiates only (n=122).



- **Key results Table 4 and Figure 5**: ~Half of all ART verified silent transfers re-initiated on same-day presentation; multi-level modeling revealed that the facility a patient transfers to accounts for 37.4% of all variability seen in same-day re-initiation.

SUMMARY OF RESULTS

- Our assessment of reasons for non-verification revealed that patients are often non-identifiable at new site by neither name nor ART ID; even among the verified transfers, we found that patients are often registered under new identifiers.
- Even after 1 year between clinic visits, only 43% of patients previously on ART had re-initiated at their new transfer site; multivariate modeling revealed that the rate to re-initiation was even slower for those who transferred to clinics cross-provincially.
- Incidence of same day initiation was high, with the new site accounting for a large amount of the variability in this outcome.

CONCLUSIONS

- Movement between facilities involves both administrative as well as clinical inefficiencies.
- Re-entry into new clinics among the silent transfer population is often delayed and timely re-initiation of treatment is inconsistent, suggesting interruptions in treatment.
- To mitigate the challenges of patient migration, strategies that allow for use of unique patient identifiers at the level of the national health system would be beneficial in managing ART programs and accurately accounting for retention.
- Improved data platforms that ensure better management of electronic records across clinics could reduce the workload and delays created by having to re-stage, re-counsel and re-initiate ART for patients who silently transfer between sites.

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