

# **IMPROVED RETENTION WITH LONGER FOLLOW-UP INTERVALS** FOR STABLE PATIENTS IN ZAMBIA

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## Background

- As a result of rapid scale-up of ART over the past decade, there are now 18 million people receiving life-long care, increasing congestion in already overburdened clinics.
- Patients face significant barriers to retention including transportation, time away from work, clinic wait times, and competing life priorities.
- Differentiated care has garnered substantial attention as a solution to both decongest clinics and improve long-term retention in care
- Extending appointment and pharmacy refill intervals in routine care particularly up to 6 months—is a simple intervention to improve retention in care that has been under-studied and under-prioritized in comparison to more resource-intense models of differentiated care.

## Methods

- Study Population: Stable HIV-infected patients on ART who presented for routine follow-up between January 1, 2013 – July 31, 2015 at one of 63 CIDRZ-supported clinics in Zambia
  - Stable: On ART>180 days, CD4>200 cells/ $\mu$ L for 6 months, No TB diagnosis in past 6 months
  - Routine Follow-Up Visits: Clinical follow-up, pharmacy visits, adherence visits. Excluded visits with change in ART or TB evaluation only
- Measurements: Data on patient characteristics, clinical history, and visit history was extracted from the Zambian electronic medical record system (SmartCare). Measures of retention included:
  - Missed Visits: >14 days late to earliest scheduled clinic visit
  - Gaps in Medication: >14 days late to next pharmacy refill
  - Loss to follow-up (LTFU): >90 days late to earliest scheduled clinic visit
- <u>Analysis</u>:
- We performed a descriptive analysis of visit distributions and integration of clinical and pharmacy follow-up.
- We then utilized a multilevel mixed effects logistic regression, including measures of prior retention as covariates to limit bias from confounding, to evaluate the effect of earliest scheduled return appointment intervals on subsequent retention in care using individual visits as the unit of analysis.



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#### Earliest Scheduled Return Intervals Across Clinic Sites



Intraclass correlation (ICC) for Clinic Site: 17.5% (95% CI 13.2 - 22.9) \*Based on results from mixed effects linear regression model for predictors of appointment interval

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of Return Interval on Subsequent Retention									
	Missed Visit			Gaps in Medication			LTFU		
	<u>aOR</u>	<u>95% CI</u>	<u>p-value</u>	<u>aOR</u>	<u>95% CI</u>	<u>p-value</u>	<u>aOR</u>	<u>95% CI</u>	<u>p-value</u>
<u>ent Interval:</u>									
5	1.88	1.83-1.94	<0.001	1.52	1.47-1.57	< 0.001	1.28	1.21-1.36	< 0.001
	1.0 (reference)			1.0 (reference)			1.0 (reference)		
	0.83	0.82-0.4	<0.001	0.92	0.90-0.93	< 0.001	0.95	0.92-0.97	< 0.001
	0.53	0.52-0.54	<0.001	0.68	0.67-0.69	<0.001	0.92	0.90-0.95	<0.001
hs	0.39	0.36-0.43	<0.001	0.62	0.57-0.68	<0.001	0.64	0.55-0.74	< 0.001
	0.23	0.21-0.26	<0.001	0.50	0.43-0.57	< 0.001	0.48	0.40-0.59	<0.001
	1.10	1.08-1.11	<0.01	1.10	1.09-1.12	<0.01	1.16	1.14-1.19	<0.01
Oy increase	0.94	0.93-0.95	< 0.01	0.92	0.92-0.93	<0.01	0.92	0.91-0.93	<0.01
per 50 rease	1.00	1.00-1.00	0.862	1.00	1.00-1.00	0.472	0.99	0.99-1.0	<0.01
e ART	1.01	1.01-1.01	<0.01	1.01	1.00-1.01	<0.01	0.99	0.98-0.99	<0.01
10% increase	0.91	0.90-0.92	<0.01	0.89	0.88-0.90	<0.01	0.87	0.86-0.89	<0.01
sits, per 10% ent	0.89	0.88-0.90	<0.01	0.88	0.88-0.89	<0.01	0.88	0.87-0.89	<0.01
10% ent	1.05	1.04-1.06	<0.01	1.06	1.05-1.07	<0.01	1.05	1.04-1.07	<0.01

### Key Findings

• Though 6.9% of clinical follow-up visits were scheduled at 6 months, only 8.6% of these patients received equally long pharmacy refills (69.4% received 3 month pharmacy refills).

• ICC for clinic site was 17.5%, indicating that clinic site explained 17.5% of the variability in scheduled appointment intervals.

Patients whose earliest scheduled return to clinic was at 6 months were less likely to miss their next visit (aOR 0.23), have a gap in medication (aOR 0.50), and become LTFU by their next visit (aOR 0.48) as compared to those scheduled to return at 1 month.

We would like to thank CIDRZ Staff for assistance with data extraction

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## Conclusions

• There is poor integration of clinical follow-up and pharmacy refills requiring patients to return to the clinic on a frequent basis despite longer clinical follow-up intervals.

• There is substantial heterogeneity in appointment scheduled practices at the clinic level with clinic site being an important predictor of scheduled appointment intervals.

• Extending clinic return intervals, at least up to 6 month intervals, is associated with improved retention in care.

## Implications

• Our data suggests that retention in care could be improved with extending clinic return intervals—a straightforward intervention requiring minimal additional infrastructure.

• Additional studies are needed to evaluate the role of even longer clinic return intervals (i.e. 1 year) as well as the role of longer return intervals as a strategy to improve retention in patients already suffering from poor retention.

• Further research to identify the reasons for clinic-level heterogeneity and lack of integration of clinical and pharmacy follow-up is needed.

• Factors such as pharmacy supply-chain, clinic and pharmacy management, drug shortages and stockouts, and provider practices may be important areas for future intervention.

### <u>Acknowledgements</u>

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