

Linkage to Care Outcomes Using Mobile Money Vouchers for Children and Pregnant and Lactating Women Identified as HIV-Positive Through Community-Based Testing

Evidence from the Mobilizing HIV Identification and Treatment Project

BACKGROUND

Identifying undiagnosed HIV-positive children is a challenge in Lesotho due to low HIV prevalence for children coupled with limited resources. In 2015, no consistent testing opportunities were available outside of conventional testing touchpoints within health facilities. As a result, community-based testing was recognized as a solution to finding children who were not routinely seeking health services at facilities. However, the perceived disadvantage with community-based testing was the additional barrier of patients getting to and from the facility to initiate and remain on ART. **In an effort to eliminate this barrier, the Mobilizing HIV Identification and Treatment (M-HIT) project piloted a mobile money system to provide transport vouchers to patients in order to support patients linking to care.**

M-HIT PROJECT AND M-PESA OVERVIEW

The M-HIT project commenced in October 2015 in Maseru and Leribe districts, with the aim of rapidly identifying undiagnosed HIV-positive children and pregnant and lactating women (PLWs) through seven different community-based testing strategies and linking them to care at the nearest health facility.*

The project utilized an mHealth system to enrol newly identified HIV-positive children and PLWs at the point-of-diagnosis. The system incorporated m-pesa, a mobile money system, that sent enrolled clients four e-vouchers. These e-vouchers ranged between 10 LSL - 50 LSL (~\$1–\$5 USD) each, with amounts based on anticipated transport costs to their referred health facility for ART initiation.

*More information on M-HIT testing strategies can be found in the *Testing Strategies* memo.

EVALUATION OBJECTIVES

Primary Objective

Determine if children (0 - 14 years) and PLWs testing HIV-positive in a community-based setting were successful in linking to care at a facility (defined as pre-ART or ART initiation) and being retained on ART.

Secondary Objective

Time to ART initiation and the effect of mobile money vouchers on linkage to care.

METHODOLOGIES

From **December 2015 – November 2017, patients were enrolled in the mHealth system.** CHAI staff used this information to follow-up patients at referral facilities. Data were collected on linkage to care, ART initiation and refill dates from these facilities' ART registers. Patients were followed-up for a minimum of three months from enrolment.

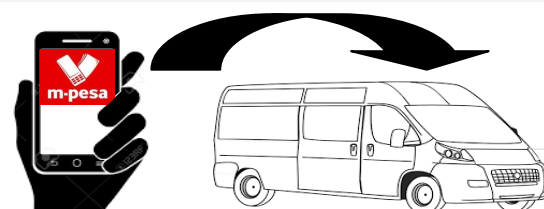
To acquire more depth on the quantitative linkage to care data, **a patient survey was conducted** at the end of the project with enrolled PLWs and the caregivers of HIV-positive patients over the phone. The survey aimed to receive feedback on the project's mHealth system and client experiences in initiating ART. Feedback was also received on the mobile money voucher system and how patients used the money.

M-HIT's mHealth Enrolment & Mobile Money System

- 1 Newly identified HIV-positive children and PLWs were found through community-based testing. An M-HIT healthcare worker immediately enrolled them in the mobile app.



- 2 The first of 4 e-vouchers was sent to the client or caregiver's phone to support transport to/from the facility for the ART initiation process.



Clients redeemed the e-voucher for cash and began the ART initiation process.

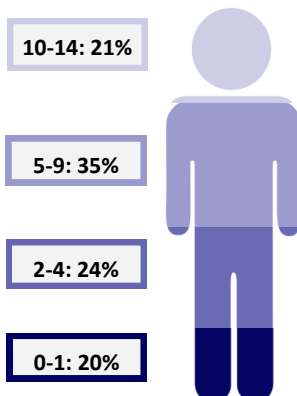
- 3 The remaining 3 e-vouchers were sent to the client over the course of the next month; the timing was aligned with ART refill visits.



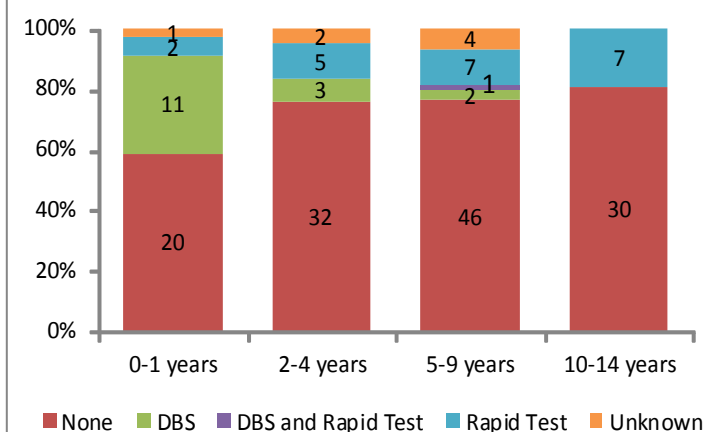
HIV-POSITIVE CHILDREN: CHARACTERIZATION OF THE COHORT

- 173 HIV-positive children enrolled
⇒ 50% male; 50% female
- At time of enrolment, 43% of children were accompanied by their biological mothers, of which only 56% were already on ART
- 74% of all children had never previously been tested
⇒ Only 22% of children over 5 had been tested prior to M-HIT
⇒ 3% of children over 2 years of age had ever received a DBS test

Age Breakdown of Children (N=173)

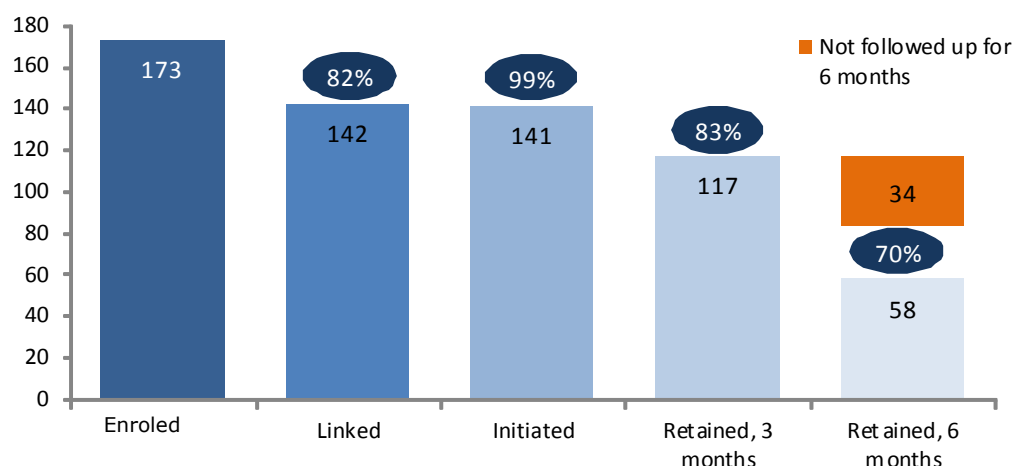


Prior HIV Testing History



HIV-POSITIVE CHILDREN: LINKAGE AND RETENTION IN CARE OUTCOMES

Cascade of Linkage to Care and ART Initiation and Retention



- 82% of HIV-positive children linked to care; all but 1 initiated on ART
- 5 children died throughout the follow-up period; 4 of the 5 had been initiated on ART; all were less than 2.5 years
- 8 children had documented transfers to other facilities
- Among those who initiated:
 - ⇒ 3 month retention: 83%
 - ⇒ 6 month retention: 70%
 - ⇒ There were no significant differences in retention by age

HIV-POSITIVE CHILDREN: TIMING TO ART INITIATION

- Children took a median of 23 days after diagnosis to initiate on ART before test and treat began and only 4 days to initiate after test and treat was implemented*
- For all ages except children 0-1 years, the median time from testing HIV-positive to ART initiation decreased after the introduction of test and treat
⇒ Children 0-1 likely saw no decrease because PCR tests require time to receive results while rapid test results are available within hours, thereby making same day initiation feasible

Time from Positive Diagnosis to ART Initiation: Before and After Test and Treat (T&T) Policy Change**

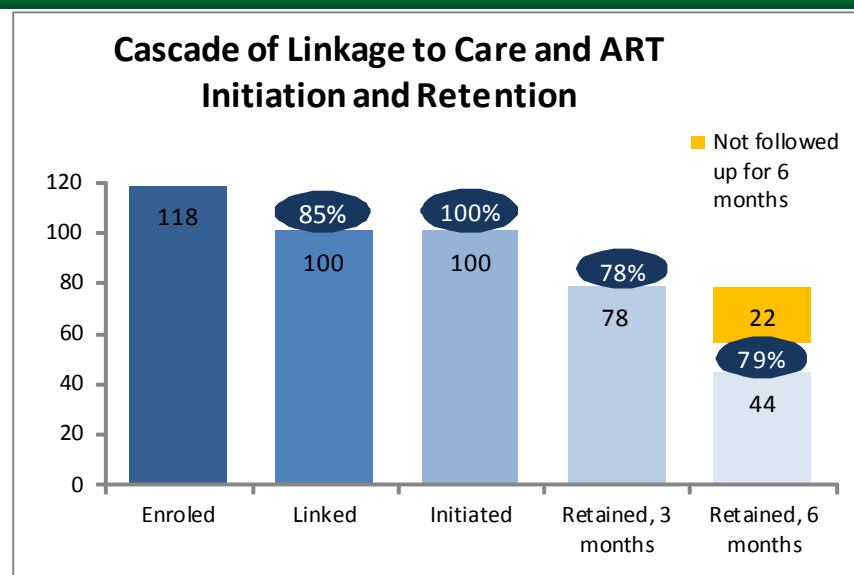
Age Group	Before T&T		After T&T	
	N	Median (IQR)	N	Median (IQR)
0-1 years	5	8 (3-23)	21	20 (0-54)
2-4 years	13	13 (1-42)	20	1 (0-10)
5-9 years	14	29 (13-48)	34	6.5 (0-76)
10-14 years	3	34 (28-108)	28	4 (1-42.5)
All ages	35	23 (3-48)	103	4 (0-56)

*3 patients excluded due to missing ART initiation dates.

**The Test & Treat policy change occurred in Lesotho in June 2016

PREGNANT & LACTATING WOMEN: LINKAGE AND RETENTION IN CARE OUTCOMES

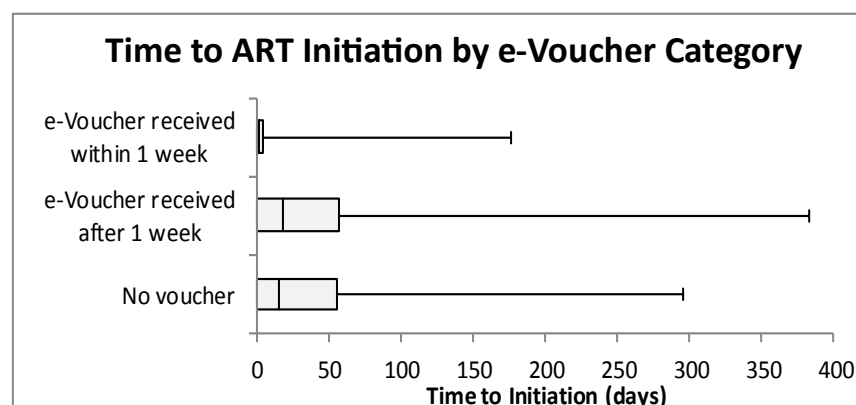
- 118 PLWs enrolled
 - ⇒ 32% pregnant
 - ⇒ 68% lactating
- 85% linked to care and initiated on ART
 - ⇒ Initiated same day as enrolment: 40%
- Among those initiated on ART:
 - ⇒ 3 month retention: 78% (85% pregnant women, 74% lactating women)
 - ⇒ 6 month retention: 79% (79% pregnant women, 77% lactating women)
- 2 women died
- 5 women had documented transfers to other facilities



IMPACT OF THE MOBILE MONEY VOUCHERS

Linkage Status	HIV+ Children		PLWs	
	n	%	n	%
Received e-Voucher				
Linked to Care	107	84%	72	86%
Not Linked to Care	21	16%	12	14%
Didn't Receive e-Voucher				
Linked to Care	35	78%	28	82%
Not Linked to Care	10	22%	6	18%

- Those who received vouchers had better linkage outcomes, although the differences were not statistically significant:
 - ⇒ 6% increase in linkage for children who received e-vouchers ($p=0.382$)
 - ⇒ 4% increase in linkage for PLWs who received e-vouchers ($p=0.646$)



- Time to e-voucher affected time to ART initiation:
 - ⇒ Children who received a voucher within 1 week of enrolment had a significantly faster median time to ART initiation of 1.5 days, compared to children who received their first voucher later than 1 week (18 days, $p=0.003$)

FINDINGS FROM THE QUALITATIVE SURVEYS

Key themes that emerged from the qualitative surveys*:

- The vast majority had no issues using the m-pesa system; most people reported liking it for its ease and reliability
- When asked how caregivers spent the mobile money vouchers, almost everyone reported spending it on food or transport (with about one-third saying they spent it on both)
- Two-thirds reported it taking them 1 to 2 hours to travel to their health facility; most took public transport although ~40% reported walking

*M-HIT staff attempted to reach all clients by phone to participate in the survey; however, only ~20% were reached

CHALLENGES

- Incomplete and inconsistent record keeping amongst facility registers and ART cards resulted in uncertainty around some patients' treatment outcomes, including transfers and retention in care
- Difficulties were experienced in getting e-vouchers to all enrolled patients due to technical errors including network unavailability in remote areas which prevented SIM cards from being registered for m-pesa



KEY FINDINGS

- The M-HIT project evidence suggests that community-based testing is effective at finding:
 - ⇒ Children outside of the PMTCT program (80% were 2 years or older)
 - ⇒ Children who had never been tested before (74% for all ages)
 - ⇒ Lactating HIV-positive women not already on ART
- The perceived risk of patients not linking to care through community-based testing methods was proven to be false
 - ⇒ M-HIT found high linkage to care rates amongst the enrolled children (82%) and PLWs (85%)
 - ⇒ Once linked to care, almost all initiated on ART
- After the implementation of the Test and Treat policy, the median time from testing to ART initiation was only 4 days, implying people sought care almost immediately
- Low retention in care rates were concerning, especially the notable decline seen in HIV-positive children between 3 and 6 months
- Receiving an e-voucher for transportation did not increase the proportion of individuals who linked to care; however, when the e-voucher was received within one week, HIV-positive children initiated on ART significantly faster (1.5 vs. 18 days, $p=0.003$)

RECOMMENDATIONS

Linkage to care is not a barrier for community-based testing; however, strong referral systems are essential. Healthcare workers conducting community-based HIV testing must be required to immediately capture all data on HIV-positive identifications and record it into facility testing registers to ensure these patients receive the same follow-up support that patients tested at the facility receive.

Transportation to health facilities was not found to be a significant barrier in linkage to care as most patients who both received and did not receive vouchers linked to care and initiated on ART. However, given the effect observed around the timing of voucher receipt to ART initiation, it is recommended that more research be conducted to understand why this occurred and how it can be optimized in other projects.

Due to the sharply declining ART retention rates, it is recommended that PMTCT programs and paediatric ART corners improve mechanisms which support retention in care starting on the day of ART initiation. Avenues to strengthen adherence counseling, specifically for PLWs and HIV-positive children and their caregivers should be implemented into all routine ART delivery.