YBank: financial incentives for improving retention in care and adherence to anti-retroviral therapy amongst adolescents living with HIV in Rwanda

Megan Bontempo[1,2], Majdi Osman[2], Manasi Sharma[2,3], Simon Pierre Niyosenga[4], Rebecca Hope[2], Shannon Milroy[2], Tiffany Chan[3], Ngamije Patient[5], Bernard Kabayiza[6], Manzi Oliver[6], Muhayimpundu Ribakare[4], Grace Wyshak[3], Sabin Nsanzimana[4]

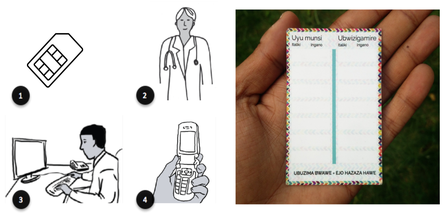
[1]University of California Berkeley, School of Public Health, [2]YLabs, [3]Harvard T.H. Chan School of Public Health, [4]Rwanda Biomedical Center, [5]Kirehe Hospital, [6]Centre Hospitalier Universitaire de Kigali

Introduction

The problem:
Although antiretroviral therapy (ART) has shown to be critical in the treatment of HIV by suppressing HIV viral load and sustaining immune function, its adherence has been poorest in adolescents, especially in Sub-Saharan Africa. [1,2] Financial incentive-based programs have shown early promise in motivating healthy behaviors, however concerns around acceptability remain. [3,4] This study evaluated the feasibility, acceptability, and early effectiveness of a multipronged intervention for ART adherence and care retention amongst HIV+ adolescents in Rwanda, to adapt the model for scale-up and policy uptake.

Our innovation:
The YBank study is a single-arm, two-site intervention conducted over 12 weeks in the fall of 2016 amongst a cohort of youth living with HIV in Rwanda. The YBank intervention combined life skills training with short- and long-term financial incentives for clinic attendance and having an undetectable viral load (defined as less than 20 copies/mL) at the end of the study period. Monthly peer-led financial literacy training was delivered at the clinic. Enrolled adolescents also received financial incentives via mobile money and could monitor progress on palm cards.

Incentives Structure
1. Adolescents given SIM card attached to a mobile money account
2. Viral load measured during clinic visits
3. Research assistants transfer incentives for clinic attendance and suppression
4. Short term incentives received via mobile money account
5. Long term incentives transferred to savings account and monitored on cards



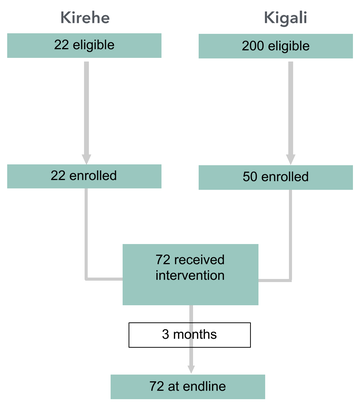
Setting

Participants
72 HIV-positive adolescents aged 12-19 were recruited through random sampling (stratified by age and gender) from an urban (n=50) and a rural (n=22) clinic.

Inclusion criteria
- Adolescents living with HIV aged 12-19
- Aware of HIV-positive sero-status
- Prescribed ART for >1 year
- Enrolled in care at study site for >1 year
- Given informed consent to study participation with full capacity (plus parent/guardian consent)

Study sites
Kirehe District Hospital, a clinic providing free HIV care to adolescents in rural areas

Centre Hospitalier de Kigali, one of the largest urban HIV clinics in Rwanda providing treatment free of charge to patients.



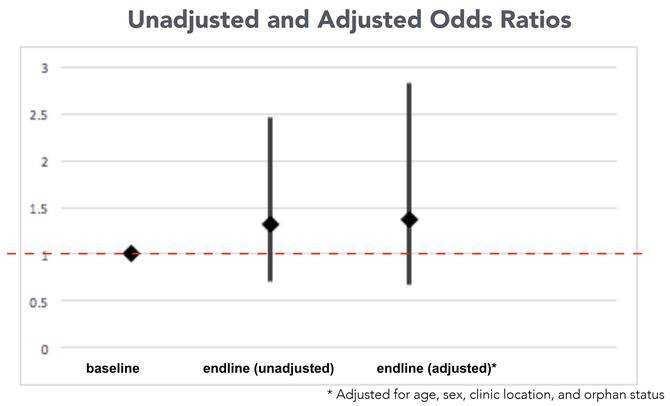
Methods

Feasibility and acceptability were assessed through one-time semi-structured in-depth interviews conducted with adolescents, caregivers and health workers. Qualitative data collection elicited experiences with and attitudes about the intervention. Transcripts were analyzed in NVivo 10.

Program effectiveness was assessed using a before-and-after analysis and multivariate logistic regression using generalized estimating equations (GEE). All statistical analyses were conducted using STATA/IC 14.1.

Results

38 of 72 (53%) youth in the study had undetectable viral loads at the beginning of the study. After participation in the YBank program 43 of 72 (60%) had undetectable viral loads. The odds of being suppressed associated with the post-intervention time period were 1.34 [95%CI: 0.71, 2.47] that of the pre-intervention time period and were not found to be statistically significant (p=0.37). We were therefore unable to reject the null hypothesis that there is no association between participation in the YBank program and medication adherence (as measured through viral load suppression). In bivariate analyses only age, sex, clinic location, and orphan status were significantly associated with viral load suppression.



Nearly all adolescents expressed an overall positive attitude regarding the financial incentive intervention. Caregivers felt overall very positively about the financial incentive intervention, but expressed more mixed attitudes compared with the adolescents, mostly related to logistical and other challenges experienced in implementing the intervention. Few caregivers expressed concern about adolescents accessing mobile money accounts independently. Challenges in accessing a mobile money account had an impact on the perceived benefit. Saving increased and no increase in spending on risky behavior was observed. Participants and caregivers wished for the incentive to be expanded to other adolescents in HIV care.

Discussion

Feasibility and Acceptability: The intervention was deemed acceptable to adolescents and caregivers, however its feasibility was limited by operational challenges, like access to mobile money accounts.

Effectiveness: While descriptive statistics demonstrated an increase in the proportion of adolescents with undetectable viral loads between baseline and endline (from 53% to 60%), regression analyses revealed that there was no statistically significant increase in the odds of suppression associated with the post-intervention time period. We were therefore unable to successfully establish an association between the intervention and increased ART adherence.

Strengths
- First study of CCT for ART adherence among youth population
- No LTFU

Limitations
- Small sample size
- No control group

Implications for future studies: Financial incentives, combined with a supportive environment and adequate skills-training, shows promise in motivating health behavior change in adolescents. [5,6] The study indicated a need for mixed-methods in designing youth-targeted financial services, and evaluating their efficacy over time using large multi-site RCTs with appropriate control groups.

Acknowledgements

We would like to thank Child Relief International, the Weiss Family Program Fund and the Harvard School of Public Health for their support in enabling us to undertake this study. We would also like to thank our research team without whom this study would not have been possible: Lameck Habumugisha (Research Manager), Marie Aimee Umutoni Dusabe and Octave Irakarama (RAs – Kirehe), Juliette Mukasafari and Evelyn Isugi (RAs – CHUK), Delphine Niyotwagira and Nelson Turimana (PMs – Kirehe), Marie Jeanne Uwihirwe and Jean Claude de Golay Niyitanga (PMs – CHUK)

This study was approved by the Rwandan National Ethics Committee, the Committee for the Protection of Human Subjects at Harvard T.H. Chan School of Public Health, and the Committee for the Protection of Human Subjects at the University of California, Berkeley School of Public Health.

References

1. World Health O. World Health Organization - HIV and Adolescents from Guidance to Action.
2. Smith Fawzi MC, Ng L, Kanyanganzi F, et al. Mental Health and Antiretroviral Adherence Among Youth Living With HIV in Rwanda. Pediatrics. 2016;138(4).
3. Galárraga O, Genberg BL, Martin RA, Barton Laws M, Wilson IB. Conditional economic incentives to improve HIV treatment adherence: literature review and theoretical considerations. AIDS Behav. 2013;17(7):2283-2292.
4. McCoy SI, Shiu K, Martz TE, et al. Improving the efficiency of HIV testing with peer recruitment, financial incentives, and the involvement of persons living with HIV infection. J. Acquir. Immune Defic. Syndr. 2013;63(2):e56-63.
5. McNairy ML, Gachuhi AB, Lamb MR, et al. The Link4Health study to evaluate the effectiveness of a combination intervention strategy for linkage to and retention in HIV care in Swaziland: protocol for a cluster randomized trial. Implement. Sci.2015;10:101.
6. Betancourt TS, Meyers-Ohki S, Stulac SN, Barrera AE, Mushashi C, Beardslee WR. Nothing can defeat combined hands (Abashize hamwe ntakibananira): protective processes and resilience in Rwandan children and families affected by HIV/AIDS. Soc.Sci. Med. 2011;73(5):693-701.

Contact us

To learn more about the study visit: **y-labs.org/projects/ybank**

Follow us on twitter and instagram: **@ylabsglobal**

For more information please contact: Megan Bontempo at **megan.bontempo@y-labs.org**

AIDS 2018