FINANCIAL INCENTIVES IN TANZANIA

Evidence-Based for Retention in HIV Care
Evidence-Based for Viral Suppression
Evidence-Based Structural Intervention

INTERVENTION DESCRIPTION

Goals of Intervention
- Increase retention in HIV care
- Increase viral suppression

Intended Population
- People with HIV (PWH) starting antiretroviral therapy (ART)

Brief Description

Financial Incentives in Tanzania are a structural intervention that offers usual care and a monthly monetary transfer conditional on visit attendance for up to 6 months to people with HIV starting antiretroviral therapy (ART) in Tanzania. One of two amounts are offered: 10000 Tanzanian shillings ($4.50 in US dollars – the smaller incentive group) and 22500 Tanzanian shillings ($10.00 US dollars – the larger incentive group). The incentives are intended to motivate clinic attendance, with the amounts chosen in consultation with local and national stakeholders and designed to motivate clinic attendance and to partly cover the costs of transportation, food, and lost wages for the day spent at the clinic. Cash transfers are delivered a maximum of once monthly via an automated mobile money system that is linked to a biometric attendance monitoring system. Specifically, participant fingerprints and mobile banking account details are registered in the mHealth system. Subsequent clinic attendance is logged in the mHealth system upon a fingerprint scan administered by a pharmacist or research assistant at the pharmacy. Participants who do not have access to a mobile banking account receive money in hand from a research assistant. Participants can receive a maximum of six transfers totaling a potential $27 to $60 USD depending on study group and visit attendance.

Theoretical Basis
- Classical economic and behavioral economic theory

Intervention Duration
- Six months

Deliverers
- Health care worker
- Pharmacist
- Research study staff

Intervention Settings
- HIV primary care facilities (clinics)

Delivery Methods
- Electronic-based technology (cash transfers in hand)

Structural Components

- Capacity Building – Technology
  - Used a mobile health technology designed for health care workers that linked biometric attendance monitoring to automated mobile payments
- Social Determinants of Health – Survival
  - Provided financial incentives to motivate clinic attendance and to partly cover the costs of transportation, food, and lost wages for a day spent at the clinic

INTERVENTION PACKAGE INFORMATION

An intervention package is not available at this time. Please contact **Sandra McCoy**, University of California Berkeley, Division of Epidemiology, School of Public Health, Berkeley, CA 94720.

Email: smccoy@berkeley.edu for details on intervention materials.

EVALUATION STUDY AND RESULTS

Study Location Information

The original evaluation study was conducted in Shinyanga Region, Tanzania in 2018

Key Intervention Effects

- Increased retention in HIV care
- Increased viral suppression

Study Sample

The sample characteristics for the total sample (n = 530) included:

- *62% female persons, 38% male persons*
- *13% persons aged 18-24 years, 38% persons aged 25-34 years, 49% persons aged ≥ 35 years*
- *Median age = 35 years old; Interquartile interval (28-42)*
- *33% low wealth index, 33% middle wealth index, 33% high wealth index*

Note: Percentages may not add up to 100% due to rounding.

Recruitment Settings

- Hospital-based and free-standing community-based health clinics serving lower- and middle-income populations.

Eligibility Criteria

Adults ≥18 years with HIV infection who had initiated antiretroviral therapy within 30 days were eligible for inclusion. There were no formal exclusion criteria; however, patients known to be temporarily in-transit and those facing a language barrier were excluded.

Assignment Method

Participants were randomly assigned (1:1:1) to receive usual HIV care provided by the health facilities (control group; n = 184), usual care plus a smaller incentive (n = 172), or usual care plus a bigger incentive (n = 174). Research assistants randomly assigned participants using the mHealth system's custom application installed on tablet computers. The application sequentially allocated participants stratified within each site using randomly permuted blocks of 30, which were generated by the application developers and concealed from research assistants. Following random assignment, neither participants nor research assistants were masked to intervention assignment. Participants were masked to the existence of two incentive sizes. Clinical and laboratory staff were not informed of intervention assignments.

Comparison

Participants in the control group (n = 184) received usual care (i.e., standard HIV primary care services according to Tanzania's National Guidelines for the Management of HIV and AIDS).

Relevant Outcomes Measured

- The primary outcome was retention in HIV care with viral suppression (< 1000 copies per mL, the World Health Organization's (WHO's) threshold for virological failure) at 6 months after starting ART.
- Additional outcomes included the component measures of the primary outcome:
    - Proportion retained in care at 6 months
    - Proportion of those retained in HIV care who were virally suppressed
    - Mean appointment attendance or the proportion of scheduled visits attended on-time (within 4 days of the scheduled date) over the 6-month follow-up period

Participant Retention

- The primary outcome of retention in care with viral suppression was measured for 497 (94%) of participants, and 474 (89%) of participants completed the study's endline questionnaire at 6 months.

Significant Findings on Relevant Outcomes

- A substantially larger proportion of participants were retained in HIV care and virally suppressed in both the smaller incentive group (143/172 [82.9%]; risk difference [RD] = 9.80, 95% Confidence Interval [CI]: 1.2 - 18.5; p = 0.026) and the larger incentive group (150/174 [86.1%]; RD = 13.0, 95% CI: 4.5 - 21.5; p = 0.0027) compared to the control group (134/184 [73%]). *†
    - A larger proportion of participants were retained in HIV care at 6 months in the larger incentive group (RD = 7.1, 95% CI: 0.3 – 13.9; p = 0.041) compared to the control group.
    - Of those retained in care (n=464), a larger proportion of participants were virally suppressed in the larger incentive group (RD = 7.8, 0.9 –14.7; p = 0.027) compared to the control group.* †
- The mean proportion of appointments attended on time substantially exceeded the control group in both the smaller incentive group (RD = 7.4, 95% CI: 2.7 – 12.1, p = 0.002) and the larger incentive group (RD = 10.5, 95% CI: 5.9 – 15.2, p < 0.001). †

*Viral suppression status was multiply imputed for 33 (6%) of 530 participants who remained in HIV care but were missing a viral load result.
†Adjusted for clinic where randomization occurred.

Considerations

Additional significant positive findings on non-relevant outcomes

- None reported

Non-significant findings on relevant outcomes
- There were no differences between the smaller and larger incentive groups for the composite variable of retention in care with viral suppression, and retention in care and viral suppression separately.
- There were no differences between the smaller incentive group and the control group for retention in HIV care.
- Among those retained in HIV care, there were no differences between the smaller incentive group and the control group for viral suppression.

Negative findings
- None reported

Other related findings
- In secondary analyses, results were similar when adjusting for prognostic factors and in the complete case sensitivity analyses through multiple imputation to estimate viral suppression status for participants who remained in care at 6 months but did not have a valid viral load result (e.g., missing values for the primary outcome).
- Stratified analyses showed that incentives elevated the proportion retained in care and virally suppressed from 68% in the control group to 87% in the incentive group (RD = 18.9, 95% CI: 5.1 – 32.7, p = 0.007) for participants in the lowest wealth bracket. There was no detectable effect for the highest wealth bracket.
- Incentive effects on viral suppression did not substantially vary by sex, age, or timeliness of ART start after HIV-positive diagnosis; but the study was not powered for these analyses.

Implementation research-related findings
- None reported

Process/study execution findings
- A total of 1631 payments were made to participants upon clinic attendance, mostly delivered through mobile banking (1264 [77.5%]).
- Almost all participants in the incentive groups received at least one payment (163 [95%] of 172 participants in the smaller incentive group and 168 [97%] of 174 participants in the larger incentive group).
- The mean number of payments made to participants in the smaller incentive group was 4.6 (Standard deviation [SD]; 1-7) with 73% (Standard error [SE]: 0.032) payments delivered through mobile banking.
- The mean number of payments made to participants in the larger incentive group was 4.8 (SD: 1-6) with 78% (SE 0.032) payments made through mobile banking.

Adverse events
- Adverse events included seven (4%) deaths in the control group and 11 (3%) deaths in the intervention groups, none related to study participation.

Funding
National Institutes of Mental Health at the National Institutes of Health (R01MH112432)

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