Evaluating Conditional Cash Transfers to prevent HIV and other STIs in Tanzania

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Rewarding STI Prevention and Control in Tanzania (RESPECT Project)

Implementing institutions
Ifakara Health Institute
World Bank Development Economics Research Group
UC-Berkeley

Funding from the World Bank (Research Committee and Spanish Strategic Impact Evaluation Fund) and Hewlett Foundation/Population Research Bureau.
• Treatment: Important, but not the solution to slow the HIV/AIDS epidemic. Estimation that $1 in prevention averted $43 in treatment in Thailand (Over et al. 2007)

• Vaccine technology: Many years in future.

• Existing prevention efforts: Low effectiveness in most African settings.

• Novel approaches needed! Conditional cash transfers (CCT) have been promising in other domains ... could they be adapted to help slow the AIDS epidemic?
OVERVIEW

- **What**: “Proof of concept” evaluation of randomized CCT to incentivize reduction in risky sex.

- **Why**: Goal is to decrease HIV incidence, with potential subsequent long-run health and economic benefits.

- **How**: Condition cash incentives on periodic negative STI tests.

- **Where**: Ifakara Demographic Surveillance Site in rural Tanzania.
BEHAVIORAL CHANGE INTERVENTIONS

- Mass information, education, and communication (IEC) campaigns: shown to have had relatively little impact on patterns of HIV transmission.

- Research finds VCT, condom distribution, circumcision, can be cost-effective... but by themselves may not change trajectory of the epidemic.

- In Tanzanian youth:
  - Awareness of HIV prevention methods is high, but use of those methods is low.
  - Condoms are cheap, but low use
  - Recent VCT campaign had low take-up
Progrresa/Oportunidades:
- Condition on education, health behaviors. Increased health visits, vaccinations, general health, height.

Contingency management: Incentivize reductions in risky behaviors.
- Substance abuse, e.g. cocaine, alcohol, tobacco
- Weight loss
- Seatbelt use

Several experiments in Malawi: incentives for VCT, HIV incentive trials, regular CCT with monitoring of STI outcomes. (Thornton; Thornton and Kohler; Baird, McIntosh, Ozler)
CCTs to Reduce Risky Sexual Behavior?

- **Conditionality**: Increase “price” of risky sex, if positive STI test causes loss of CCT.

- **Time discounting**: Bring rewards of risk reduction closer to present, rather than just avoiding AIDS many years in future.

- **Income effects**: Direct impact on sexual behavior likely small, but can facilitate behavioral change, especially for women.
Because this is a novel approach, there are many unanswered questions on how an intervention using such an approach could be – or should be – designed.

- What is the appropriate target population? Set within residential communities or riskiest networks?
- What is the appropriate amount of cash to dispense?
- What interval of testing/payment is needed?
- For how long should the intervention run?
- How can women be assisted in bargaining ability?
- What are the risks?
AIM OF THE PROJECT

- The study will test the hypothesis that using cash as a primary incentive to reduce risky sexual behavior, coupled with counseling and life-skills training, will result in
  - Enhanced economic well-being
  - Improved sexual/reproductive health outcomes.
SPECIFIC OBJECTIVES

- Evaluate the impact of the combined CCT/counseling intervention during the intervention period (immediate and short-term effects) on STI incidence overall and by specific subgroups.
- Evaluate the economic outcomes of the reward.
- Examine the long-term effects of the intervention – and its withdrawal – with final round of STI testing and surveying in the same population 12-months after the intervention has ended.
- Compare the impact of the CCT intervention in the high-value cash transfer arm to that in the low-value cash transfer arm.
The study is a Randomised control trial

Sample drawn from the DSS database

Participants 3000

Intervention group (Conditional cash) N=1,500

High-value N=750

Low-value N=750

Control group N= 1,500

Counseling and life-skills training
**CONDITIONAL CASH TRANSFER (INTERVENTION 1)**

- **Conditionality: Treatment group**
  - Testing negative for a set of curable STIs (Chlamydia, gonorrhea, trichomonas, mycoplasma genitalium, syphilis)
  - Although we are testing for them, we do not condition on HIV and HSV-2 because they are not curable.

- **Amount**
  - 20,000 TZ Shillings or \(\sim=\) USD 20 every four months (high-value)
  - 10,000 TZ Shillings or \(\sim=\) USD 10 every four months (low-value)
Hypothetical rewards, how much would you change your sexual behavior if you were eligible for it?

How much would this eligibility for the reward motivate you to change your behavior?

- Very Much
- None
**Content**

- The psycho-social component
  - Emphasizes gender-based counseling and “life-skills” training to increase basic financial literacy
  - Address gender/power inequities
  - Encourage deliberate decision-making in sexual and reproductive health (prevention of HIV, other STIs, and unintended pregnancy).

**Frequency and type**

- Once monthly, during the first year (2 hrs each session); Gender-specific groups
<table>
<thead>
<tr>
<th>Intervention group</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre and post-counseling</td>
<td>Pre and post-counseling</td>
</tr>
<tr>
<td>Group psycho-social counseling</td>
<td>Group psycho-social counseling</td>
</tr>
<tr>
<td>Life-skills training</td>
<td>Life-skills training</td>
</tr>
<tr>
<td>STI testing</td>
<td>STI testing</td>
</tr>
<tr>
<td>Inconvenience fee</td>
<td>Inconvenience fee</td>
</tr>
<tr>
<td>Treatment for STIs</td>
<td>Treatment for STIs</td>
</tr>
<tr>
<td><strong>Conditional cash</strong></td>
<td></td>
</tr>
</tbody>
</table>
Chronology and study activities

- Registration
- Assignment
- Interviews
- Counseling*
- Sample collection
- Conditional cash
- Compensation

* Pre and post-counseling

The post-intervention follow-up, 12-months later (month 24) will assess long-term biological impact

Treatment, Psychosocial counseling and life-skill straining
EXPECTED OUTCOMES

• Biological outcomes (proxies for risky sexual behavior)
  - Total burden of infection
  - “interval-specific” incidence rates across arms
  - Impact of the treatment arm, e.g., on self-reported behaviors (e.g. condom use, number and concurrency of sexual partners, etc.).

• Economic changes

• Gender-based Power relations
Inclusion/Exclusion Criteria

- Inclusion criteria consist of sexually active males and females, aged 18-30 (and spouses ages 16 or over) who reside in selected villages within the Kilombero/Ulanga district HDSS and who consent to participate in the study.

- Exclusion criteria includes:
  - currently pregnant,
    - intention to permanently migrate out of the DSS area within the next year, and
    - unwillingness to participate if assigned to the control arm.
We recruited 2419 individuals, 1198 males and 1221 females.

Team A stayed for one week in each village to recruit, interview and collect specimens.

Two weeks later, team B visits the village and delivers the results from the tests. 92.2% of the individual tested came back to receive their results. STI positive individuals received free treatment vouchers.

Monthly counseling sessions started in the 10 villages

First follow-up and second follow-up surveys completed and round 4 planned (February – April 2010)
### Results from baseline survey

**Marital status and sexual behavior**

<table>
<thead>
<tr>
<th>Marital status</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>28.16%</td>
<td>13.91%</td>
</tr>
<tr>
<td>Married</td>
<td>57.34%</td>
<td>66.82%</td>
</tr>
<tr>
<td>Living in union</td>
<td>11.13%</td>
<td>12.07%</td>
</tr>
<tr>
<td>Divorced</td>
<td>3.37%</td>
<td>4.86%</td>
</tr>
<tr>
<td>Widowed</td>
<td>-</td>
<td>0.34%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of partners in last 4 months</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>12.18%</td>
<td>10.44%</td>
</tr>
<tr>
<td>1</td>
<td>68.05%</td>
<td>86.16%</td>
</tr>
<tr>
<td>2</td>
<td>15.62%</td>
<td>2.72%</td>
</tr>
<tr>
<td>More than 2</td>
<td>4.15%</td>
<td>0.68%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condom use during last sexual intercourse</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>With spouse or union</td>
<td>15.06%</td>
<td>13.79%</td>
</tr>
<tr>
<td>With other partner</td>
<td>61.30%</td>
<td>49.51%</td>
</tr>
</tbody>
</table>
Baseline survey: Knowledge of HIV and prevention methods. High levels at baseline

<table>
<thead>
<tr>
<th>HIV</th>
<th>Males (N = 1175)</th>
<th>Females (N = 1191)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heard of AIDS or HIV?</td>
<td>99.83% (N = 1,177)</td>
<td>99.92% (N = 1,192)</td>
</tr>
<tr>
<td>Can die from AIDS</td>
<td>94.30%</td>
<td>92.53%</td>
</tr>
<tr>
<td>Knowledge of prevention methods (ABC): AIDS can be prevented by:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Just one partner</td>
<td>97.02%</td>
<td>97.40%</td>
</tr>
<tr>
<td>Regular condom use</td>
<td>85.62%</td>
<td>84.21%</td>
</tr>
<tr>
<td>Abstaining</td>
<td>91.32%</td>
<td>90.93%</td>
</tr>
<tr>
<td>Witchcraft</td>
<td>1.96%</td>
<td>4.11%</td>
</tr>
<tr>
<td>Other facts about HIV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healthy looking person can be HIV infected</td>
<td>97.19%</td>
<td>95.63%</td>
</tr>
<tr>
<td>Not being infected after having sex with HIV positive</td>
<td>50.21%</td>
<td>42.74%</td>
</tr>
<tr>
<td>Child can be infected during pregnancy</td>
<td>81.62%</td>
<td>88.92%</td>
</tr>
</tbody>
</table>
## Baseline survey: Perceptions about condoms and AIDS treatment

<table>
<thead>
<tr>
<th>How effective are condoms in reducing the chance of getting AIDS?</th>
<th>Males (N = 1175)</th>
<th>Females (N = 1191)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almost never effective</td>
<td>13.45%</td>
<td>8.90%</td>
</tr>
<tr>
<td>Sometimes effective</td>
<td>15.32%</td>
<td>15.20%</td>
</tr>
<tr>
<td>Usually effective</td>
<td>19.06%</td>
<td>18.05%</td>
</tr>
<tr>
<td>Almost always effective</td>
<td>44.26%</td>
<td>42.91%</td>
</tr>
<tr>
<td>Don’t Know (DK)</td>
<td>7.91%</td>
<td>14.95%</td>
</tr>
</tbody>
</table>

## Facts and knowledge about AIDS treatment: AIDS treatment

<table>
<thead>
<tr>
<th>Fact</th>
<th>Males (N = 1175)</th>
<th>Females (N = 1191)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is available in area</td>
<td>28.34% DK: 14.13%</td>
<td>38.37% DK: 11.75%</td>
</tr>
<tr>
<td>Causes person to live longer</td>
<td>86.13% DK: 4.43%</td>
<td>83.29% DK: 3.53%</td>
</tr>
<tr>
<td>Causes person to feel better</td>
<td>83.23% DK: 6.30%</td>
<td>79.51% DK: 6.13%</td>
</tr>
<tr>
<td>Eliminates the patient’s infectiousness</td>
<td>5.96% DK: 3.40%</td>
<td>5.25% DK: 2.85%</td>
</tr>
<tr>
<td>Cures the person</td>
<td>2.04% DK: 2.64%</td>
<td>2.77% DK: 2.10%</td>
</tr>
</tbody>
</table>
Baseline survey: Testing for HIV before the study and perception of HIV and STI prevalence

<table>
<thead>
<tr>
<th>Ever tested for HIV?</th>
<th>Males (N = 1175)</th>
<th>Females (N = 1191)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>34.81%</td>
<td>71.87%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>If yes, when last test?</th>
<th>Males (N = 409)</th>
<th>Females (N = 856)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 12 months ago</td>
<td>45.72%</td>
<td>44.98%</td>
</tr>
<tr>
<td>12-23 months ago</td>
<td>27.38%</td>
<td>28.62%</td>
</tr>
<tr>
<td>&gt;= 2 years ago</td>
<td>26.89%</td>
<td>26.40%</td>
</tr>
</tbody>
</table>

| Received the HIV test results? | 90.95% | 92.29% |

Perceived HIV prevalence, HIV own’s risk and history of STIs.

<table>
<thead>
<tr>
<th>Perceived HIV prevalence for same age group in community</th>
<th>16.01% (N = 1166)</th>
<th>18.40% (N = 1175)</th>
</tr>
</thead>
<tbody>
<tr>
<td>On scale 0-10 what is your risk of being HIV positive</td>
<td>2.12 (N = 1175)</td>
<td>2.19 (N = 1191)</td>
</tr>
<tr>
<td>Had sexual infection in last 12 months?</td>
<td>3.48% (N = 1175)</td>
<td>2.27% (N = 1192)</td>
</tr>
</tbody>
</table>
Preliminary results from baseline survey

STI prevalence

- Conditioned STIs:
  - Chlamydia: Males: 1.69% - Females: 2.69%
  - Gonorrhea: Males: 0.42% - Females: 1.43%
  - Trichomonas: Males: 8.61% - Females: 16.40%
  - Mycoplasma genitalium: Males: 15.53% - Females: 22.05%
  - Syphilis: Males: 2.11% - Females: 1.26%

- Not conditioned STIs:
  - HIV: Males: 2.45% - Females: 4.63%
  - HSV-2: Males: 26.10% - Females: 43.31%
Some preliminary results beyond the baseline

- Since we are powered to detect changes after 12 months, the study team has decided not to release intermediary results by study arm from rounds 2 (June – August 2009) and 3 (October – December 2009).
- However, we present a few general evolutions on condom perception and decision about sexual activity and condom use among partners. Those are self-reported variables.
Is it embarrassing to buy condoms?

![Graph showing the decrease in embarrassment over rounds for males and females.](https://via.placeholder.com/150)

- **Round 1:**
  - Males: 26
  - Females: 25

- **Round 2:**
  - Males: 5
  - Females: 10

- **Round 3:**
  - Males: 0
  - Females: 5
Decision among partners about having sex

Both partners decide jointly about having sex

- **Round 1**
  - Males
  - Females

- **Round 2**
  - Males
  - Females

- **Round 3**
  - Males
  - Females

**Graph:**
- X-axis: Rounds 1, 2, 3
- Y-axis: Percentage
- Lines: Males (blue), Females (red)
Decision among partners about using a condom

Both partners decide jointly about using a condom

- **Males**
- **Females**

<table>
<thead>
<tr>
<th>Round</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Round 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Round 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Round 3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ETHICS CONSIDERATIONS-INSTITUTIONAL LEVEL

- Ethical clearance by
  - Ifakara Health Institute (IHI) Institutional Review Board
  - National Institute of Medical Research (NIMR)—Ministry of Health and Social Welfare, Tanzania
  - The University of California, Berkeley
**Community Sensitization to enhance transparency**

- In each study village, study staff worked with village leaders to build understanding of and support for the study within the villages.
- Study staff gave presentations at community meetings to explain the study and encouraged questions from all concerned community members.
- Study staff also worked together with the community performing groups to provide education on the importance of STI prevention.
ETHICAL CONSIDERATIONS-INDIVIDUAL LEVEL

- Minors are excluded – minimum age is 18 years
- Comprehensive informed consent
- Free treatment is offered to those who test positive and given another chance to participate
- Partner treatment encouraged via extra vouchers
- HIV/AIDS positive participants will not be excluded nor dropped out of the study.
- We only condition the CCT on curable STIs
Counseling and life-skills training is offered to all participants.

Inconvenience fee to all participants (USD 2 per visit).

The proposed set of STI tests to be performed have been selected to ensure that only minimally invasive procedures are needed for specimen collection.

Barcodes are used to protect the confidentiality of study participants.
Future Possibilities?

- CCT is still rare in Africa, but proof of concept can be powerful, if successful.
- Many challenges to scaling up this design. Expensive, logistically difficult, and requires high prevalence setting. May be most promising in specific populations:
  - High risk groups, e.g. MSM, sex-workers.
  - Employer-based health programs.
- Scale-up could be easier if use random testing with large lottery-type payoffs.
Thank you