Unpacking the Results of HPTN 068: A randomized controlled cash transfer trial to prevent HIV infection in young women in South Africa

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HIV Prevalence by Age and Gender among South African youth age 15-24 years

Structural Drivers of HIV risk

- Poverty
- Education
- Gender Power
- Inequality
Keep them in school: the importance of education as a protective factor against HIV infection among young South African women

Audrey E Pettifor,1* Brooke A Levandowski,1 Catherine MacPhail,2 Nancy S Padian,3 Myron S Cohen4 and Helen V Rees2
Education is protective for HIV

- Among young women with one lifetime partner, those who had not completed high school were almost 4 times more likely to be HIV infected compared to those that had completed HS (AOR 3.75, 95% CI 1.34–10.46) (Pettifor A et al. IJE 2008)

- Two recent reviews on HIV and education indicate a protective association between higher education and HIV infection, particularly as epidemics mature (Hargreaves et al. AIDS 2008, Jukes et al. AIDS 2008)
Barriers to Education

* Poverty pushes many young people out of school in particular young women.

* In South Africa, 65% of young people who were not in school indicated that they did not have enough money to continue their education.
  * Hidden costs: uniforms, books/supplies, transport, food, etc.

* Young women are often taken out of school to find employment to support the family or to care for sick family members.

* Young people make up 40% of the unemployed globally.
  * Young women in low and middle income countries find it more difficult to find work.

Samson 2004
**Education: Baird et al (2013) review**

Systematic review of 35 evaluations:

- **36% greater enrollment** in households with ANY cash transfers
- **23% greater enrollment in UCT** (unconditional cash transfer)
- **41% greater enrollment in CCT** (conditional cash transfer) households

**Impact on enrollment greater at secondary (31%)** than primary (4%) level

- **42% greater attendance** in UCT and **65% greater attendance** in CCT households

**Effects on attendance higher in girls** than boys

**Greater transfers** (relative to per capita income) **produce greater effect sizes** (Saavedra and Garcia, 2012)
Cash to prevent HIV Infection

- 2 main approaches:
  - Upstream-- Cash for poverty alleviation which aims to reduce HIV risk
  - Downstream-- Cash as an incentive for behavior change (ie, money to test for HIV, to take your ART, male circumcision)
- > 16 studies that have been completed or are underway examining the use of cash/incentives to reduce HIV risk in adults and young women
- Will both approaches work the same in different populations?
- What is the implication for scale up?

Recently completed World Bank RCT examining conditional and unconditional transfers in young women in Zomba, Malawi

176 enumeration areas in Zomba (3796 girls ages 13-22 years, not married)

3 “arms”: conditional cash transfers, unconditional transfers, control

- Amount to parent varied from USD 4-10 per month
- Amount to girl varied from USD 1-5 per month

At 18 months, girls getting cash payments were less likely to be HIV infected compared to girls not getting the cash payments (OR 0.36 95% CI 0.14-0.91). They were also less likely to report sex in the past week and to have a partner >25 years of age.

 cash can reduce HIV risk downstream

* World Bank lottery study in Lesotho
* Men and women randomized to control or two different lottery arms (high or low) conditioned on negative STI tests every 4 months
* After 2 years of intervention, HIV incidence was significantly lower among study participants eligible for the lotteries (OR 0.75, 95% CI 0.58 - 0.97), especially among women (OR 0.67, 95% CI 0.52 - 0.86), and in the group eligible for the high prize lotteries (1000 Rands) (OR 0.69, 95% CI 0.50 - 0.98).

M. Björkman-Nyqvist, D. de Walque IAS 2013
Cash transfer and HIV infection—effect sizes

Malawi
CT trial (HIV prevalence)

Tanzania
Respect trial (STI prevalence)

Lesotho
Lottery (HIV incidence)

Control
Cash transfers

Control
Low CCT

High CCT

Control
Lottery eligible

Lottery, females

Only high value lottery

Statistically significant effect sizes

0.36

0.73

0.75

0.67

0.69

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Child-focused state cash transfers and adolescent risk of HIV infection in South Africa: a propensity-score-matched case-control study

Lucie Cluver, Mark Boyes, Mark Orkin, Marija Pantelic, Thembela Molwena, Lorraine Sherr

Child support/
Foster child grant

Age-disparate sex

Transactional sex

Multiple partners

Unprotected sex

Sex drunk or on drugs

Lancet 2013
Cash Transfers
HPTN 068: Study Design

- Phase III individually randomized controlled trial.
- Primary endpoint: HIV incidence.
- Young women and parent/guardian seen at baseline and annually for up to 3 follow-up visits between March 2012-March 2015.
- **Intervention:** Cash transfer provided to young women and parent/guardian conditional on $\geq 80\%$ school attendance monthly.
  - Attendance data collected from schools monthly
  - R100 (~USD 10) to the girl
  - R200 (~USD 20) to the parent/guardian
Methods: Study Visits

• HIV and HSV-2 were assessed at each visit.
  – HIV: Two rapid tests confirmed with Western Blot and 100% QC at the HPTN Laboratory Center

• Audio-Computer Assisted Self-Interview (ACASI) at each visit to collect:
  – e.g. sexual behavior, schooling, intimate partner violence, mental health, alcohol and drug use

• Parent/guardian interviewed at each visit to assess socio-economic status.

• Large qualitative component to study.
Study Site: Agincourt Health and Socio-Demographic Surveillance Site (AHDSS)

- Ehlanzeni District, Mpumalanga Province
- 28 villages, 115,000 people, 420 km²
- HIV Prevalence 46% and 45% among women and men 35-39 years.

Design: Study Population

Eligibility Criteria:

- Female
- Enrolled in grades 8, 9, 10 or 11 in participating high schools
- Age 13-20 years
- Not married or pregnant by self-report
- Parent/guardian living in household
- Able to complete a computer survey on her own
- Residing in study area
2,533 young women were enrolled March 2011- December 2012.

2,448 were HIV uninfected at enrollment (81 HIV+, 4 unknown status).

### Results: Baseline

<table>
<thead>
<tr>
<th>Baseline</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (Median, IQR)</td>
<td>15 (14-17)</td>
</tr>
<tr>
<td>Ever sex</td>
<td>26.6%</td>
</tr>
<tr>
<td>HIV</td>
<td>3.2%</td>
</tr>
<tr>
<td>HSV-2</td>
<td>4.4%</td>
</tr>
<tr>
<td>Ever Pregnant</td>
<td>8.9%</td>
</tr>
<tr>
<td>Orphan</td>
<td>28.6%</td>
</tr>
<tr>
<td>Food insecurity</td>
<td>34.3%</td>
</tr>
<tr>
<td>HH receives CSG</td>
<td>79.0%</td>
</tr>
</tbody>
</table>
Results: Study Conduct

- Retention was 91% over the study period.
  - 87.5% in the control arm and 95.1% in the intervention arm
- 99.7% of intervention participants eligible for payments were paid.
- Study adhered to clinical trial standards.
  - DSMB
  - Quarterly external clinical trial monitoring
Results: Social Harms

- There were no serious social harms reported by participants.
  - 16 reports (9 intervention, 7 control) during the trial.
  - 13/16 (81%) were minor teasing/jealousy related to being in the study.
Results: HIV incidence

- There was no difference in HIV incidence between those that received the cash transfer and those that did not.
  - Hazard Ratio (HR) 1.17 (95% CI 0.80-1.72, p=0.42).
- 107 incident HIV infections were identified during the study.
  - 59 in the intervention arm and 48 in the control arm
- HIV incidence was 1.8% during the study.
Results: School Attendance

- There was no significant difference in school attendance or permanent drop out by study arm.
  - **Attendance**: 95.0% in the intervention arm and 95.3% in the control arm, mean difference -0.44 (95% CI -1.44 – 0.56), p=0.39.
  - **School drop out**: 2.7% in the intervention arm and 2.9% in the control arm, RR 0.90 (95% CI 0.67 - 1.24), p=0.53
Results: HSV-2

- There was no difference between arms in HSV-2 incidence, RR 0.92 (0.71-1.18) (p=0.492)
## Results: Sexual Behavior

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Control</th>
<th>Intervention</th>
<th>RR</th>
<th>CI</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Had any sex partner in past 12 months</td>
<td>35.2%</td>
<td>32.2%</td>
<td>0.90</td>
<td>0.83 - 0.99</td>
<td>0.023</td>
</tr>
<tr>
<td>Any unprotected sex (past 3 mo)</td>
<td>10.2%</td>
<td>8.1%</td>
<td>0.81</td>
<td>0.67 – 1.0</td>
<td>0.05</td>
</tr>
<tr>
<td>IPV at any visit</td>
<td>31.2%</td>
<td>22.7%</td>
<td>0.72</td>
<td>0.64 - 0.80</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Coital debut</td>
<td>17.6%/yr</td>
<td>15.3%/yr</td>
<td>0.92</td>
<td>0.78 - 1.08</td>
<td>0.30</td>
</tr>
<tr>
<td>Partner age diff &gt;5yr</td>
<td>19.1%</td>
<td>16.0%</td>
<td>0.90</td>
<td>0.72 - 1.12</td>
<td>0.34</td>
</tr>
<tr>
<td>Transactional sex</td>
<td>10.5%</td>
<td>9.7%</td>
<td>0.95</td>
<td>0.78 - 1.15</td>
<td>0.57</td>
</tr>
<tr>
<td>Any pregnancy during the study</td>
<td>13.6%</td>
<td>13.0%</td>
<td>0.94</td>
<td>0.76 - 1.17</td>
<td>0.58</td>
</tr>
</tbody>
</table>
HIV incidence by age in young women in HPTN 068
Results: Schooling was protective

- School enrollment and attendance were protective for HIV irrespective of study arm.
  - Risk of HIV infection comparing school drop out to non drop out, HR 3.21 (95% CI 1.81, 5.71), p<.0001
  - Risk of HIV infection comparing <80% attendance to ≥80% school attendance, HR 3.05 (95% CI 1.81,5.13), p<0.0001
How did they spend the $?

Household expenditures

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol/cigarettes</td>
<td>0.00%</td>
</tr>
<tr>
<td>Healthcare</td>
<td>0.00%</td>
</tr>
<tr>
<td>Toiletries/soap</td>
<td>0.00%</td>
</tr>
<tr>
<td>Other HH items</td>
<td>0.00%</td>
</tr>
</tbody>
</table>

YW expenditures

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cigarettes</td>
<td>15.00%</td>
</tr>
<tr>
<td>Loans/debt</td>
<td>30.00%</td>
</tr>
<tr>
<td>Food/groceries</td>
<td>45.00%</td>
</tr>
<tr>
<td>Hairdressing</td>
<td>60.00%</td>
</tr>
<tr>
<td>Toiletries</td>
<td>60.00%</td>
</tr>
</tbody>
</table>
Discussion

• A monthly cash transfer conditional on school attendance did not reduce new HIV infections.
• Young women receiving the CCT reported fewer sex partners, less unprotected sex and experienced less IPV.
• School attendance was high in both arms.
• Staying in school and greater attendance significantly reduced HIV risk for young women.
• HIV incidence was 1.8% and risk behaviors were relatively low.
Unpacking results

• Why such high school enrollment?
  – High social protection coverage
  – Fee exempt schools
  – School feeding schemes
  – Qualitative data suggests study and peer effects on increasing school attendance

• Data from SA DBE from 2012/2012 shows enrollment rates in MP province of 85% for 16-18 year olds.
Unpacking results

• There was no impact on HIV, HSV-2 or pregnancy…BUT there was a reduction in IPV, having a sex partner and unprotected sex- what does this mean?
  – Trying to understand the IPV results…how did the cash reduce IPV? Self-esteem, hope for future, cash allowed girls to not choose certain partners?
Implications

• Schooling is protective for HIV
  – Low risk behavior overall
  – Those that dropped out of school, while a small group had higher incidence
  – Focus for prevention should be more on 18-24 and out of school youth

• In places with low school enrollment, cash likely can help increase attendance (may have played a role in our site for sure)
Pilot testing a 4 session intervention among CCT girls who exited the study in 2013 (June/July 2015)

- Goal setting, self-esteem
- SRH/HIV skills and education
- GBV knowledge and prevention
- Financial education

Some take aways to date: 4 sessions not enough, would like more, enjoyed mentoring/social support of group

Baseline and Endline (Oct/Nov 2015) survey plus 20 IDIs
Next Steps

* No magic bullet for prevention
* Think hard about the purpose of the cash- what are we trying to achieve with the cash?
* Context, context, context
* Targeting- who gets money/incentives? Who will benefit most?
* Focus on out of school & 18-24 year olds
* How long do you give the cash for?
  * Transition young women through a risky period?
* How to package cash with care?
* How does cash fit into combination prevention?
* Other forms of economic strengthening?
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