

Evaluating Conditional Cash Transfers to prevent HIV and Other Sexually Transmitted Infections (STIs) in Tanzania

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Rewarding STI Prevention and Control in Tanzania (RESPECT Project)

RESPECT Project Team

(a collaboration between the Ifakara Health Institute, the World Bank and the University of California, Berkeley).

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\$ → ↓ HIV?

STIs?
HIV?



~~STIs~~
~~HIV~~



\$ → ↓ HIV?

STIs?
HIV?

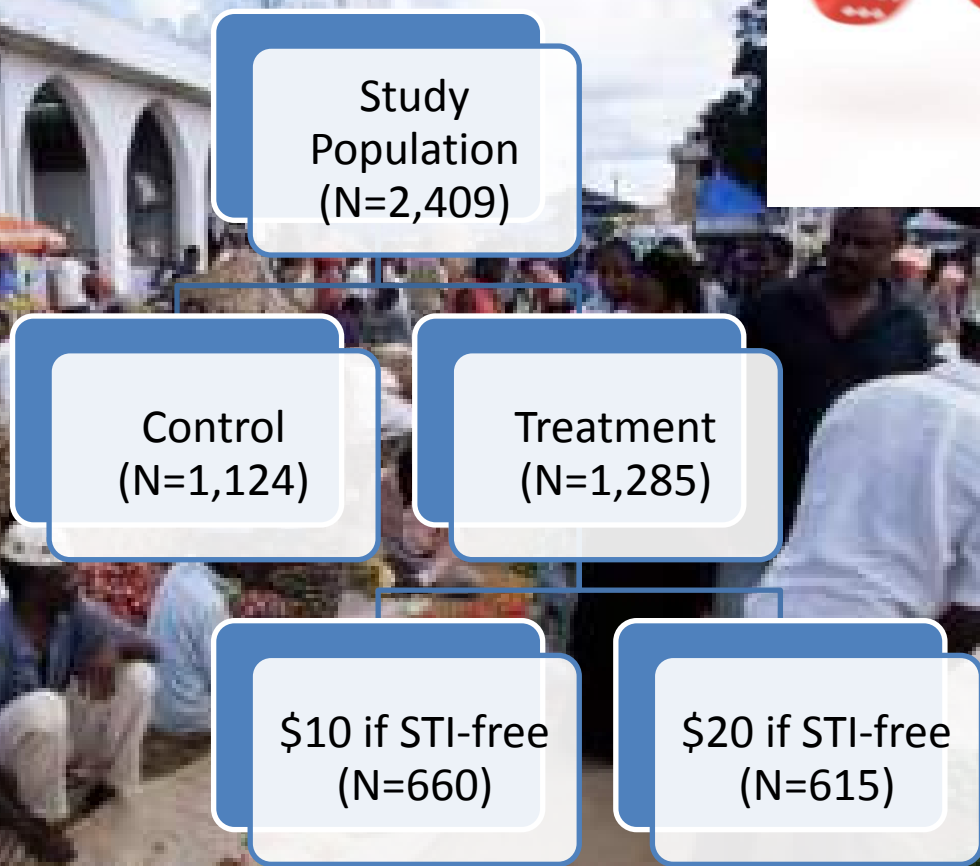
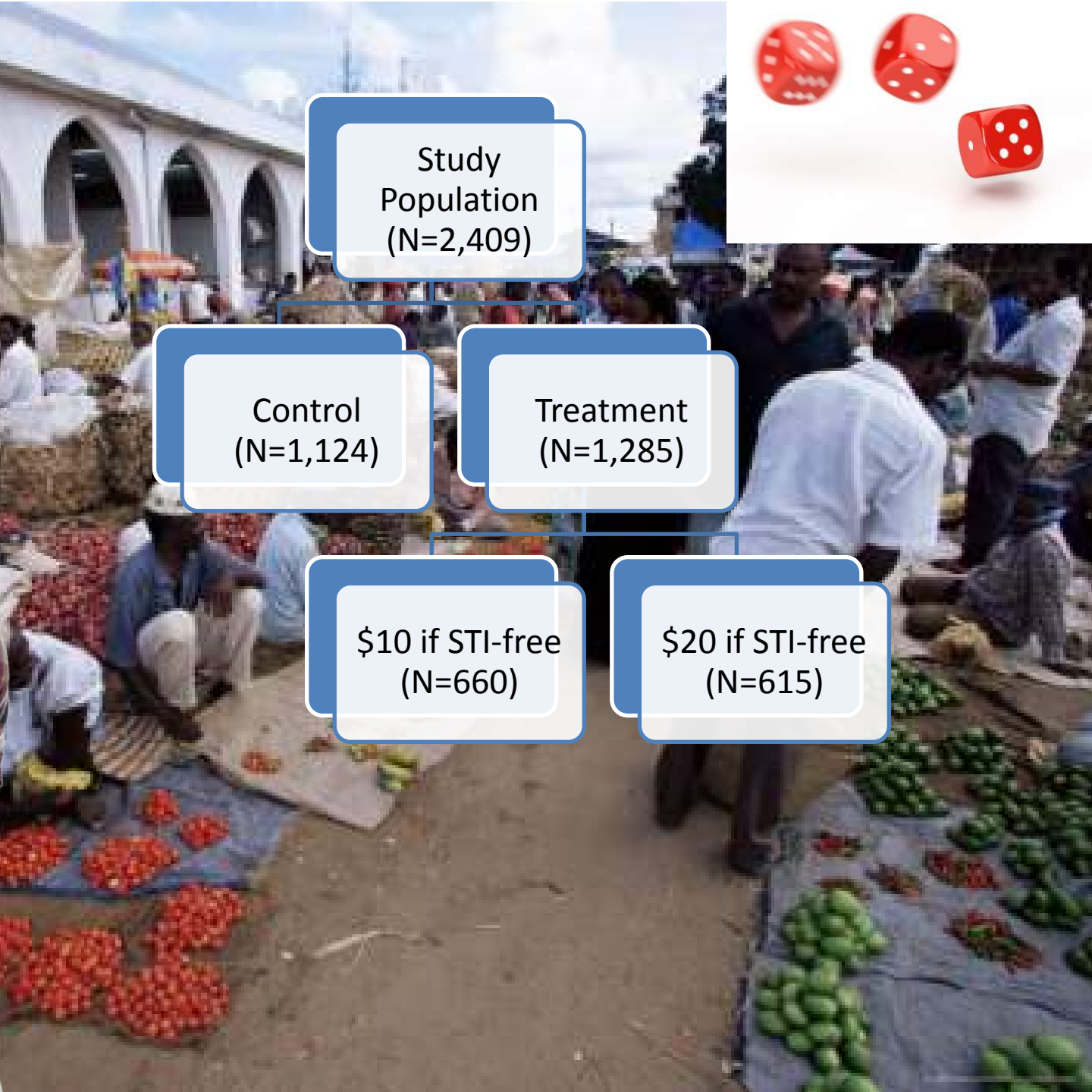
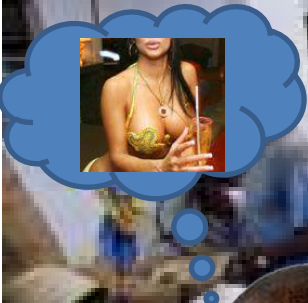


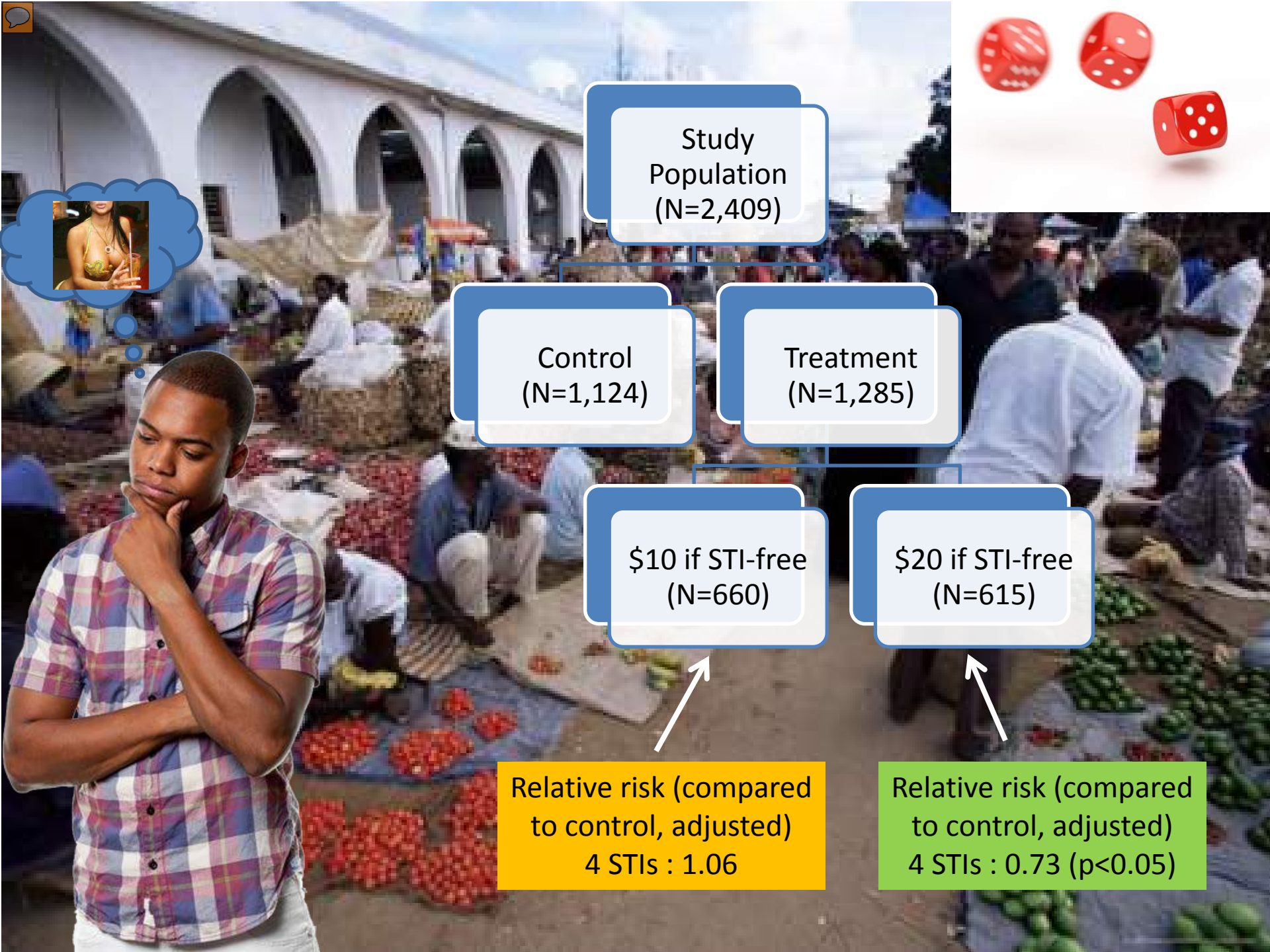
~~STIs~~
~~HIV~~

STIs?
HIV?



~~STIs~~
~~HIV~~





Study
Population
(N=2,409)

Control
(N=1,124)

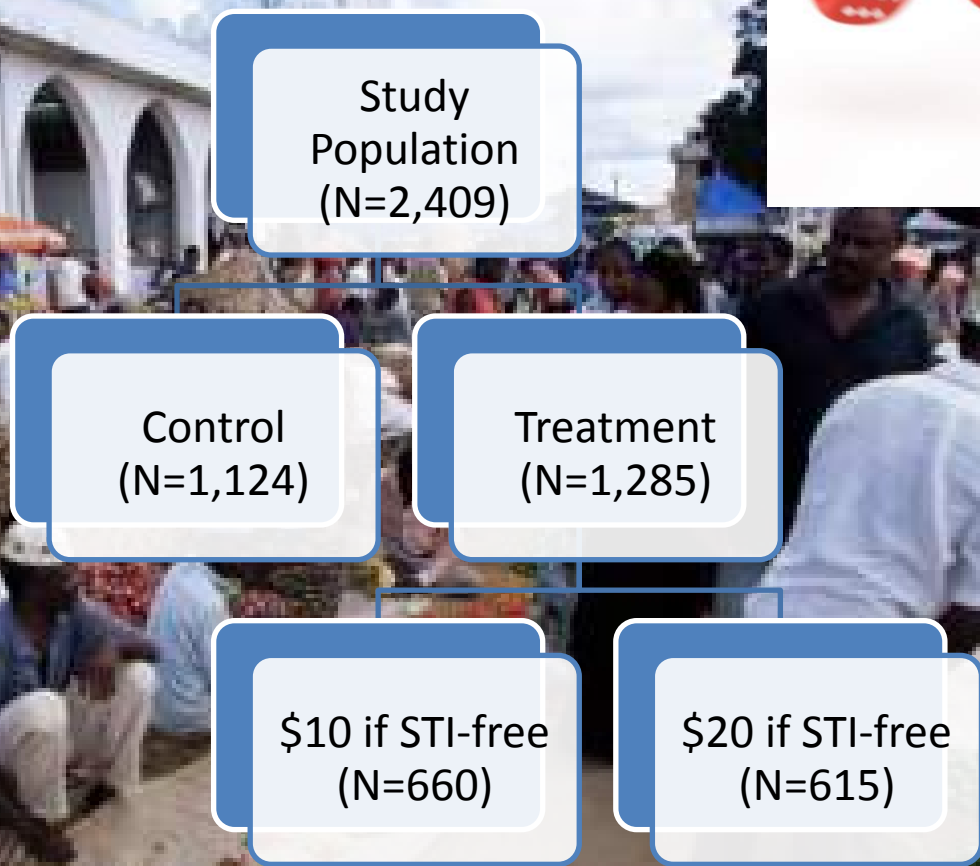
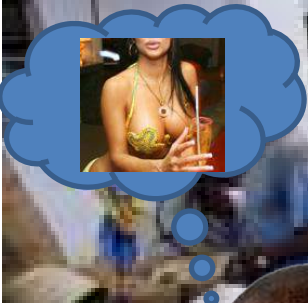
Treatment
(N=1,285)

\$10 if STI-free
(N=660)

\$20 if STI-free
(N=615)

Relative risk (compared
to control, adjusted)
4 STIs : 1.06

Relative risk (compared
to control, adjusted)
4 STIs : 0.73 (p<0.05)



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OVERVIEW

- What: “Proof of concept” evaluation of randomized CCT to incentivize reduction in risky sex.
- Why: Goal is to decrease STI incidence, with potential subsequent long-run health and economic benefits.
 - including 1-year post-intervention health follow-up
- How: Condition cash incentives on periodic negative STI tests.
- Where: Ifakara Health and Demographic Surveillance Site in rural Tanzania.



INTERVENTION ARMS

- Conditionality
 - Testing negative for the set of curable STIs tested every 4 months.
- Rewards (every 4 months)
 - High-value: 20,000 TZ Shillings or \sim = USD 20
 - Low-value: 10,000 TZ Shillings or \sim = USD 10

WHAT IS OFFERED TO THE PARTICIPANTS?

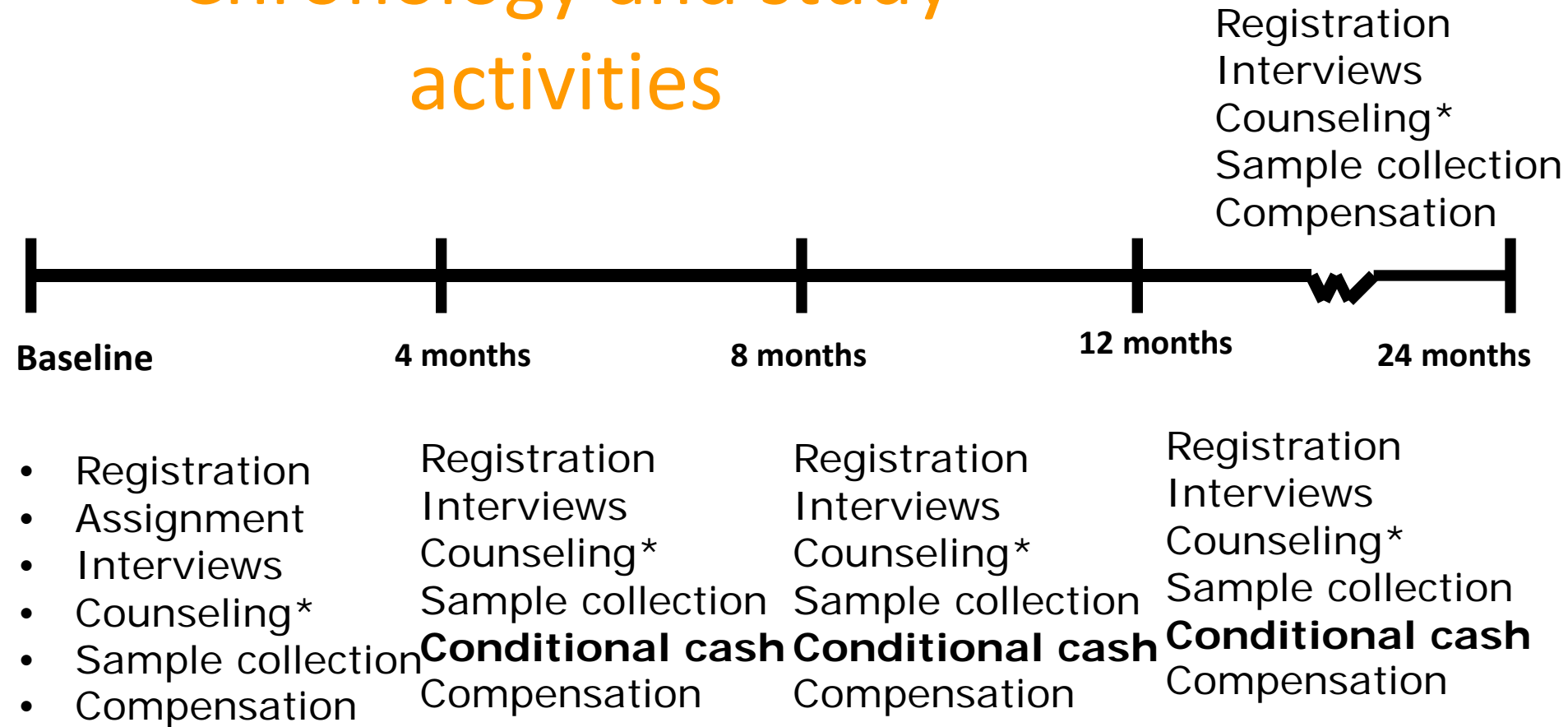
Intervention group

- Pre and post-test counseling
- Group counseling
- Relationship-skills training
- STI testing
- Inconvenience fee
- Free treatment for STIs
- **Conditional cash transfers**

Control group

- Pre and post-test counseling
- Group counseling
- Relationship-skills training
- STI testing
- Inconvenience fee
- Free treatment for STIs

Chronology and study activities



* Pre and post-counseling

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

Treatment, group counseling and relationship-skills straining



Study station





Lab work



IRB CLEARANCES

- 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 Institutional Review Board

HUMAN SUBJECT PROTECTIONS

- Minors are excluded – minimum age is 18 years (16 if married)
- Comprehensive informed consent
- Free treatment is offered to those who test positive and given another chance to participate
- Partner treatment encouraged via extra free treatment vouchers
- HIV/AIDS positive participants have not been excluded nor dropped from the study

Baseline Summary Statistics, by Arm

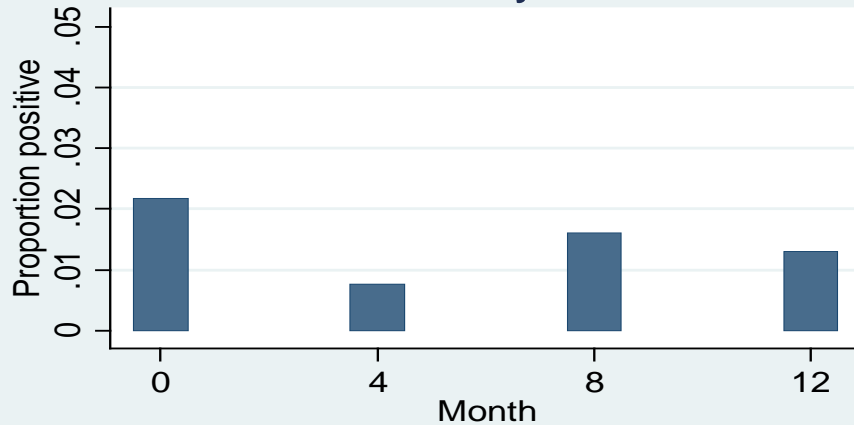
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Variables	(1) Control	(2) High Value CCT	(3) p-value *	(4) Low Value CCT	(5) p-value *
Female	0.499	0.511	0.476	0.498	0.336
Age	27.151	27.624	0.115	27.552	0.021**
Education					
None	0.124	0.114		0.120	
Primary	0.768	0.784	0.389	0.783	0.788
Secondary	0.109	0.102	0.365	0.097	0.701
Married	0.750	0.771	0.836	0.722	0.020**
Low SES	0.518	0.559	0.057*	0.572	0.027**
Yearly income	239,868	258,508	0.432	280,571	0.037**
Chlamydia	0.019	0.024	0.545	0.024	0.509
Gonorrhea	0.007	0.013	0.230	0.009	0.797
Trichomonas	0.116	0.143	0.122	0.120	0.841
HSV2	0.339	0.367	0.476	0.342	0.741
Syphilis	0.015	0.013	0.653	0.023	0.286
HIV	0.037	0.028	0.212	0.041	0.794
Condom at last sex	0.240	0.212	0.209	0.215	0.278
More than one partner	0.111	0.125	0.386	0.112	0.922
Risky sex	0.02	0.015	0.516	0.014	0.377
N =	1124	615		660	

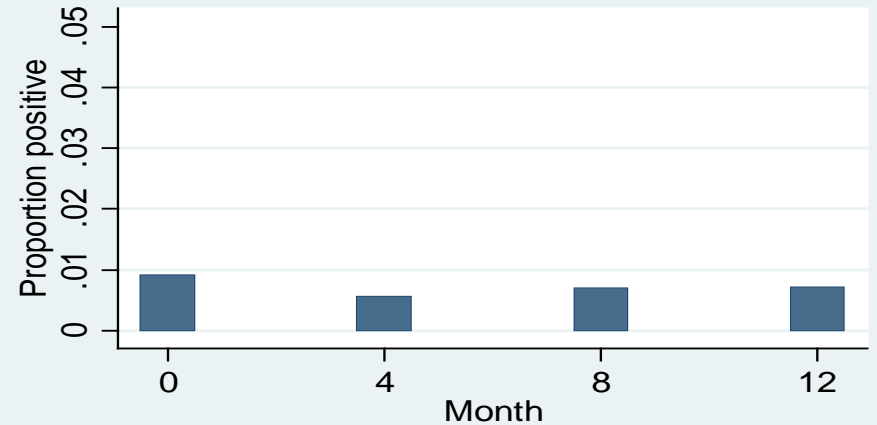
Time trend of STI prevalence: Urine/swab tests conducted at every CCT round

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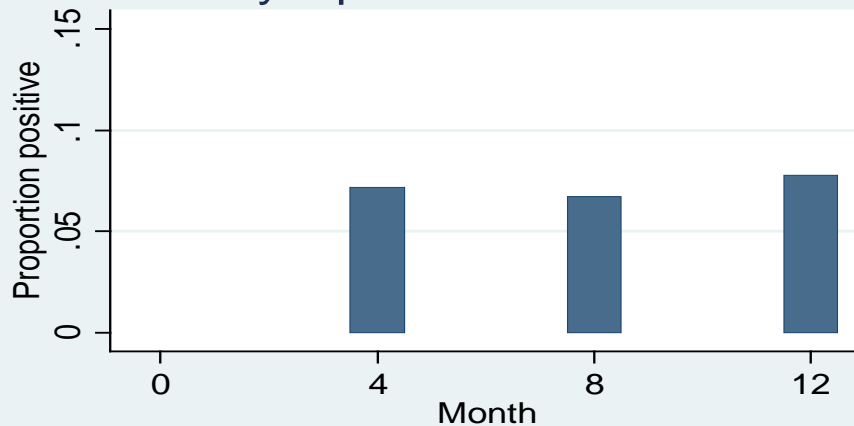
Chlamydia



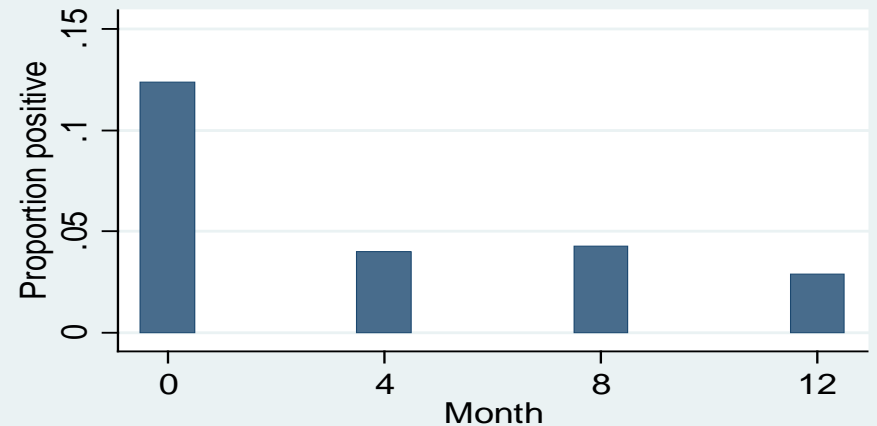
Gonorrhea



Mycoplasma Genitalium



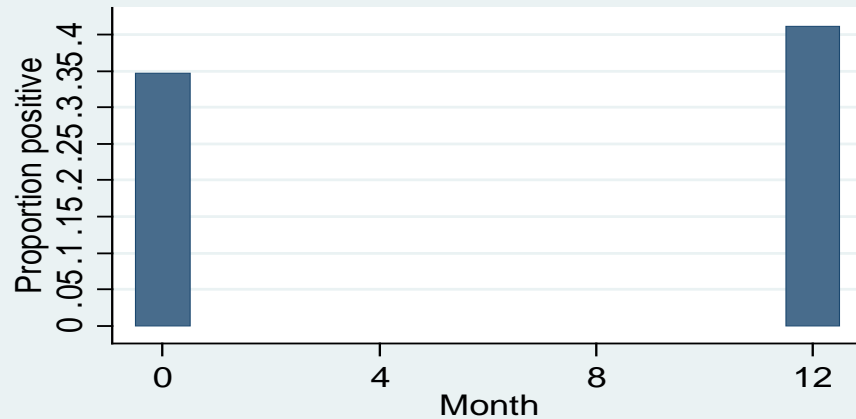
Trichomonas



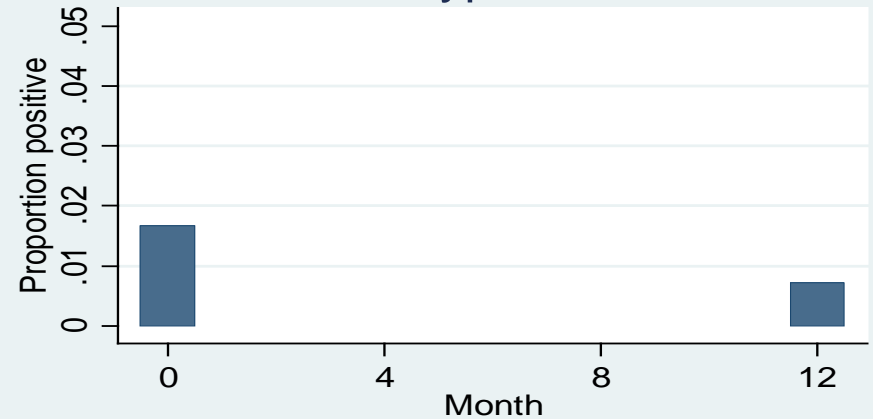
Time trend of STI prevalence: blood tests conducted only at baseline and 12-months

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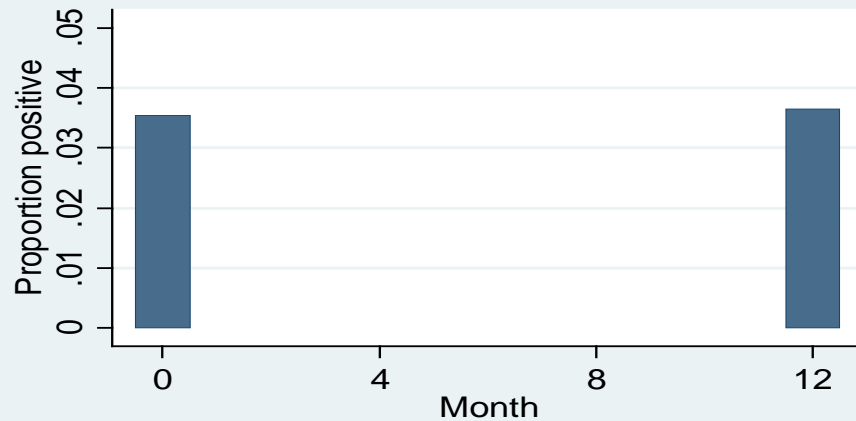
HSV2



Syphilis



HIV



Effects of CCT at months 4, 8 and 12.

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Impact on 4 curable STIs at months 4, 8 and 12			
Variables	(1) 4 STIs Month 4	(2) 4 STIs Month 8	(3) 4 STIs Month 12
High value	-0.0105 [0.0214]	-0.0117 [0.0211]	-0.0344** [0.0169]
Low value	-0.00733 [0.0167]	-0.0188 [0.0160]	0.00532 [0.0171]
Sample mean	0.116	0.124	0.116
Observations	2064	2076	2194
R-squared	0.095	0.113	0.064

4 curable STIs include: Chlamydia, Gonorrhea, Trichomonas and Mycoplasma Genitalium. Controls included are gender, age, education, marital status, socio-economic status, income, baseline STIs and sub-village fixed effects. Robust standard errors in brackets, clustered at the sub-village level

Impact on different sets of STIs at month 12

Variables	(1) 4 curable STIs	(2) HIV, HSV-2, Syphilis	(3) All 7 STIs
High value	-0.0344** [0.0169]	0.00187 [0.0179]	-0.0306 [0.0282]
Low value	0.00532 [0.0171]	-0.0196 [0.0144]	-0.0147 [0.0262]
Sample mean	0.116	0.104	0.209
Observations	2194	2193	2190
R-squared	0.064	0.316	0.163

4 curable STIs include: Chlamydia, Gonorrhea, Trichomonas and Mycoplasma Genitalium

Subgroup Treatment Effects: by gender and marital status

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Sub-groups	(1) Males	(2) Females	(3) Single	(4) Married
High value	-0.0293 [0.0247]	-0.0401 [0.0244]	-0.0314 [0.0387]	-0.0339 [0.0209]
Low value	0.0274 [0.0227]	-0.00927 [0.0250]	0.0212 [0.0322]	0.00364 [0.0233]
Sample mean	0.089	0.143	0.105	0.121
Observations	1,086	1,108	530	1,664
R-squared	0.083	0.089	0.183	0.068

Discussion

- Cash incentives significantly reduced STIs at 12-month follow-up .
 - Effects not evident at early study rounds: behavior change lags
 - Effects are primarily in the “high value” cash group, not the lower value group: suggests not just a “nudge”.
 - Effects are stronger among lower SES: the level of the cash relative to SES is important.
 - No gender effects: suggests not an income pathway.
 - Effect concentrated in curable and repeatedly tested STIs.
 - Treatment may be part of behavioral response. But don’t over-interpret, since not powered to analyze HIV, HSV2. Also HSV2 may be transmitted by skin contact, even from long-term partner and condom does not always prevent its transmission.
- Next step is analysis of sexual behaviors and STI treatment seeking behavior.

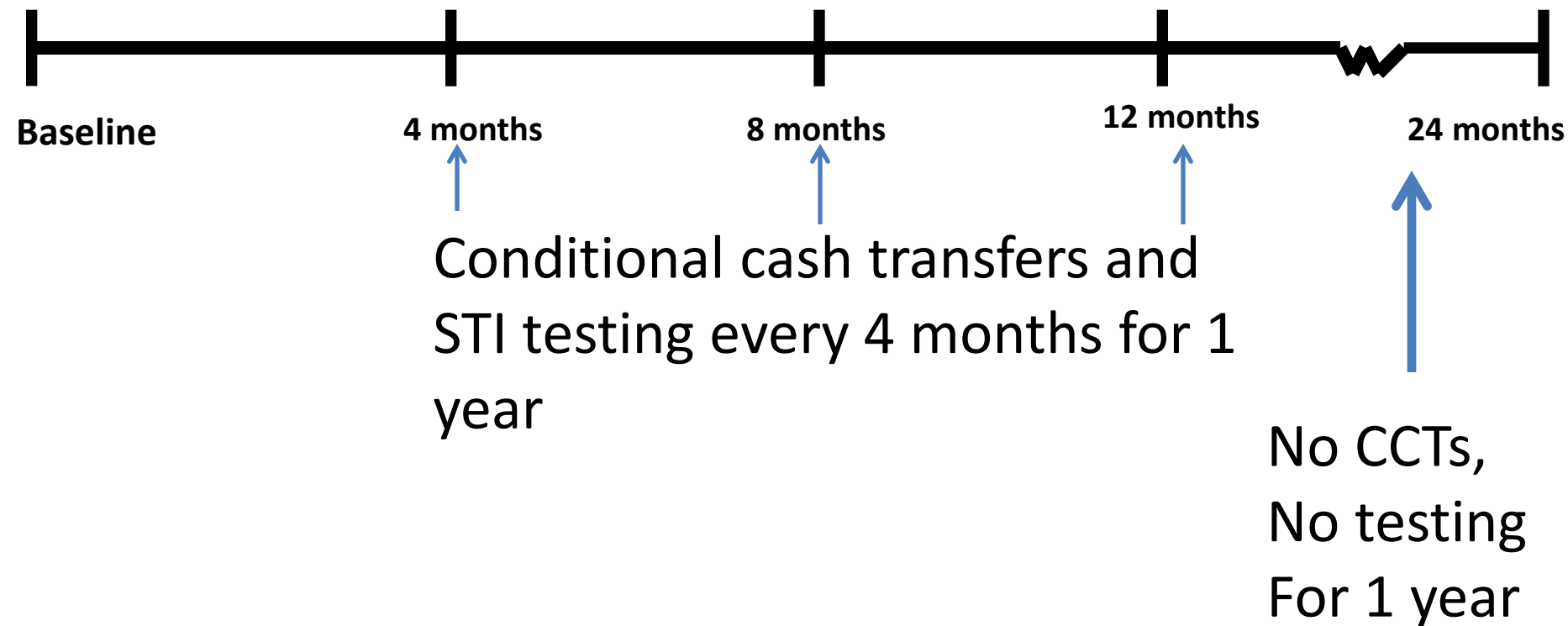


Should we pay people life-long
in order for them to choose
safe sex?





Sustained effects after the end of the intervention?





1-Year Post-intervention Follow-Up: Hypotheses

- (1) Positive sustained risk reduction: Learning
- (2) Zero long-run effect: Incentives must be continued for sustained effect
- (3) Adverse long-run effect: The cash transfers destroyed the intrinsic motivation

Results of 1 year post-intervention follow-up

- There were no adverse effects 1-year later (e.g. from destroyed intrinsic motivation).
- But gender differences:
 - Effect sustained among men.
 - Effect disappeared for women.



1-Year Post-Intervention Treatment Effects: by gender and SES

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Subgroups	(1) Males	(2) Females	(3) Low SES	(4) High SES
High value	-0.059** [0.025]	-0.007 [0.033]	-0.025 [0.033]	-0.040 [0.025]
Low value	-0.058** [0.022]	-0.018 [0.030]	-0.035 [0.027]	-0.038* [0.022]
Sample mean	0.10	0.16	0.13	0.13
Observations	1,057	1,089	1,165	981
Rsquared	0.085	0.072	0.094	0.079

Discussion

- Cash incentives significantly reduced STIs after 1 year trial.
 - Effects not evident at early study rounds.
 - But they were sustained 1-year post-intervention in some groups, implying a learning model.
 - There were no adverse effects 1-year later (e.g. from destroyed intrinsic motivation).
- Gender differentials:
 - Not evident in first year. Suggests income effects did not cause adverse effects on net.
 - 1-year post-intervention:
 - Effect sustained among men. Suggests learning important for men.
 - Effect disappeared for women. Suggests cash incentives help women at risk.

Future Possibilities?

- CCTs are becoming more common in Africa, but CCTs for STI prevention have never been scaled-up anywhere. This study provides a proof of concept, but needs replication.
- 1-Year post-intervention results suggest targeting both men and women initially, then may be reasonable to phase out incentives for men but sustain them for women.
- RESPECT not designed for scale-up. Lottery-based and/or employer-based designs may be more feasible.



Next project: For female sex workers in Dar-es-Salaam



Thank you