

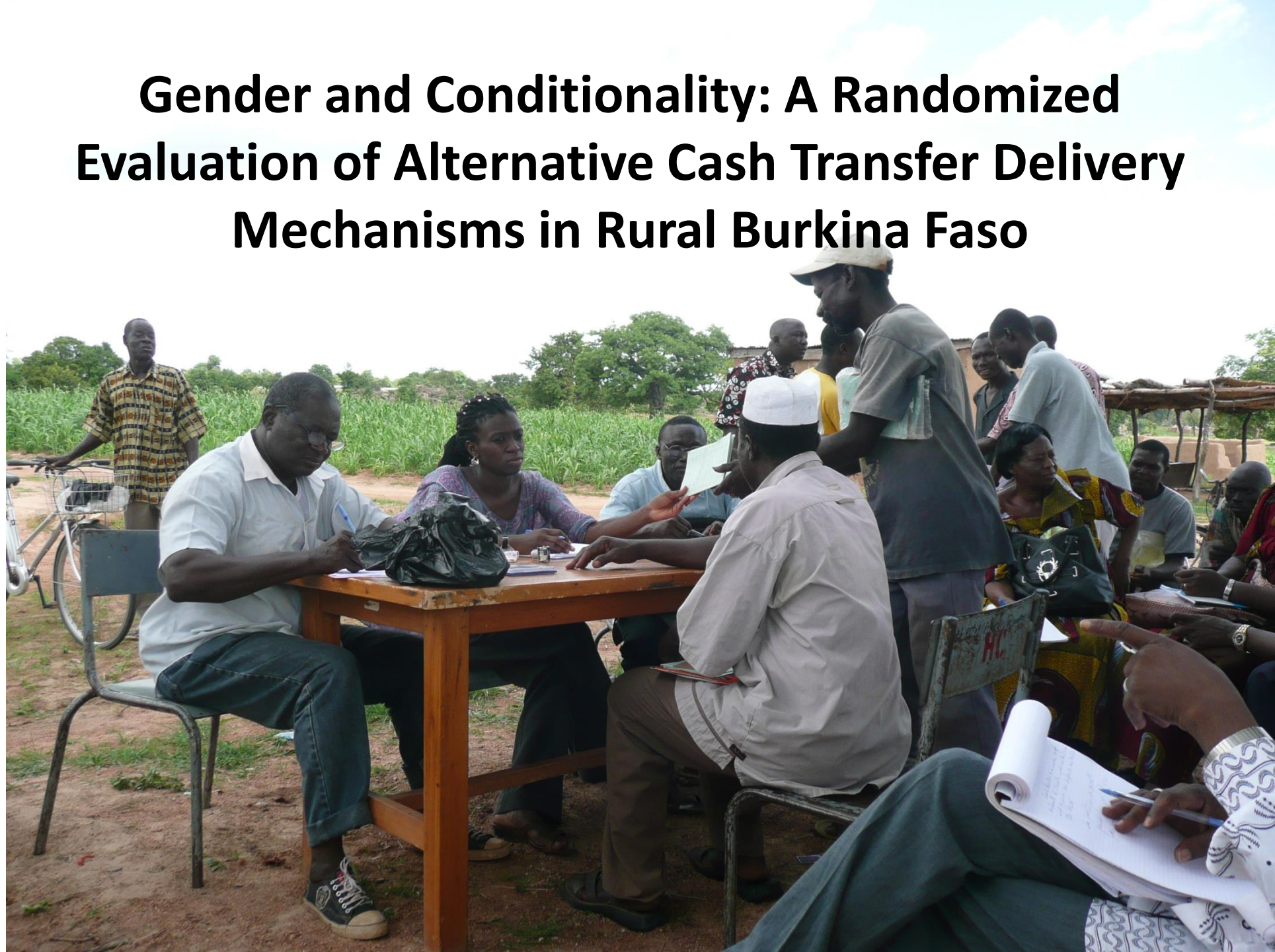
The impact of (financial) incentives on health outcomes and behaviors

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Lisbon, December 11, 2017

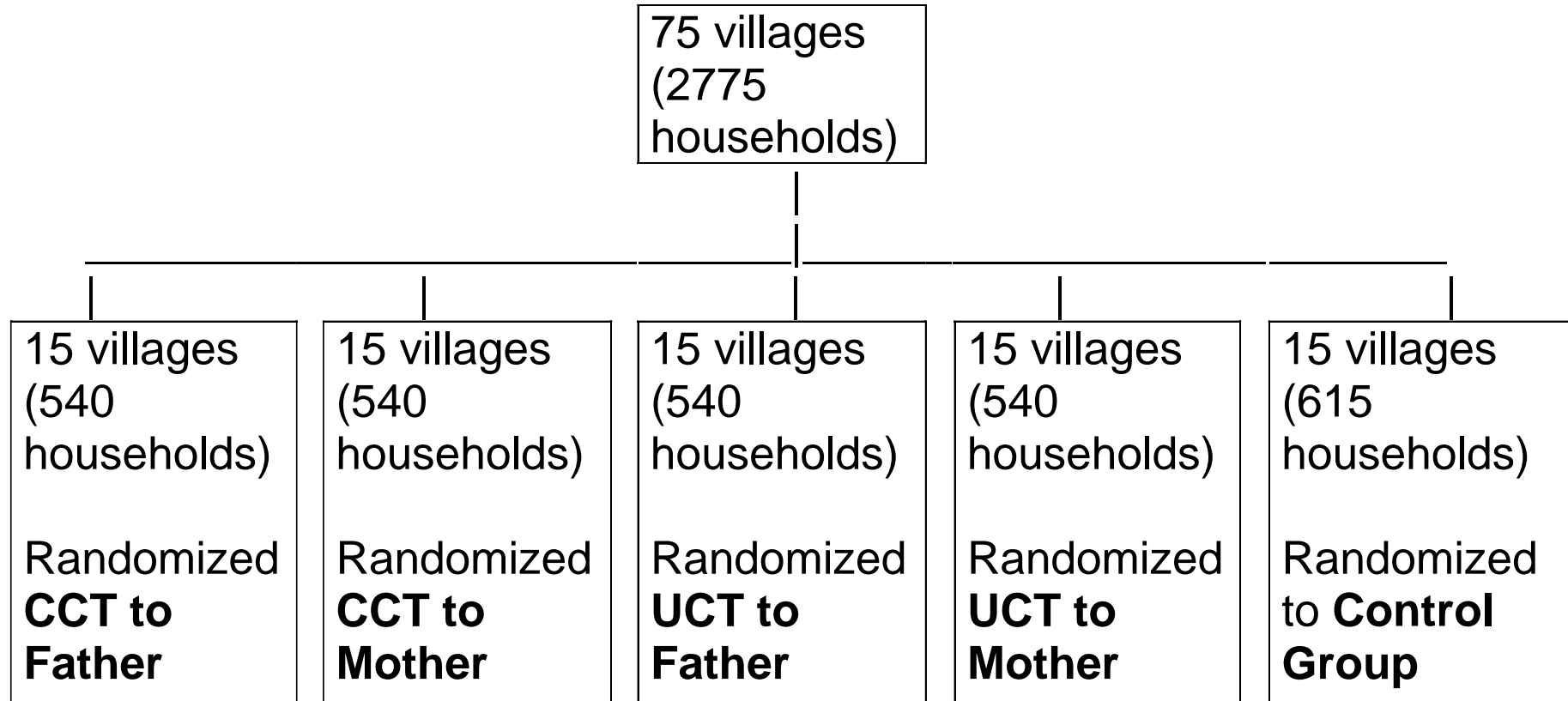
CCT and children health outcomes

- Some health outcomes and behaviors might be easier to influence from the demand side (patients, population) rather than from the supply side (health care providers).
- (Conditional) cash transfers have been widely used and evaluated as a social protection mechanism.
- When they are conditional, the conditions are linked to educational and/or health behaviors.
- They usually have impacts on reducing poverty, but also on improving education and health outcomes.

Gender and Conditionality: A Randomized Evaluation of Alternative Cash Transfer Delivery Mechanisms in Rural Burkina Faso



Cash Transfer Pilot Program Randomization Plan



Cash Transfers Overview

- Transfer amount:
 - Ages 0-6: 4000 FCFA/year
 - Ages 7-10 (Grades 1-4): 8000 FCFA/year
 - Ages 11-15 (Grades 5+): 16000 FCFA/year
- \$1 USD = 500 FCFA
- CCT:
 - Ages 0-6: Quarterly visits to health clinic for preventive care (growth monitoring)
 - Ages 7-15: School attendance rate >90%
- UCT:
 - No requirements

Nahouri Social Protection Program Evaluation:

- Panel Survey – June 2008 (Baseline before Intervention), June 2009 (1-year follow-up), June 2010 (2-year follow-up)
 - \$111 mean annual per capita expenditures
- Baseline randomization balance
 - Across dependent variables in this paper and child, parent, and school characteristics
- Household attrition
 - After 1 year (1.4%)
 - After 2 years (4.6%)
 - No evidence differences between characteristics of attritors and non-attritors differs across treatment and control groups

Health Impacts of Cash Transfers, CCT versus UCT

Dependent Variable:	Routine Checkup	Sick during last month	Health clinic utilization conditional on illness
CCT	0.431** [0.205]		
UCT	-0.079 [0.195]		
CCT * Round 2		-0.064** [0.027]	0.236*** [0.077]
UCT * Round 2		-0.041 [0.026]	0.081 [0.081]
CCT * Round 3		-0.056* [0.030]	0.199*** [0.074]
UCT * Round 3		-0.049 [0.029]	0.087 [0.084]
Number observations	2559	8840	948
<i>P-value testing equality between CCT and UCT:</i>			
CCT = UCT	0.002		
CCT*Rd2 = UCT*Rd2		0.103	0.058
CCT*Rd3 = UCT*Rd3		0.671	0.137

Health Impacts of Cash Transfers, Mother versus Father

Dependent Variable:	Routine Checkup	Sick during last month	Health clinic utilization conditional on illness
CTF	0.070 [0.209]		
CTM	0.235 [0.201]		
CTF * Round 2		-0.048* [0.026]	0.181** [0.085]
CTM * Round 2		-0.057** [0.026]	0.125* [0.073]
CTF * Round 3		-0.070** [0.030]	0.160* [0.089]
CTM * Round 3		-0.036 [0.030]	0.124* [0.072]
Number observations	2559	8840	948
<i>P-value testing equality between CCT and UCT:</i>			
CTF = CTM	0.346		
CCT*Rd2 = UCT*Rd2		0.494	0.496
CCT*Rd3 = UCT*Rd3		0.032	0.650

Anthropometric Impacts of Cash Transfers, CCT versus UCT

Variable:	Weight for age z-score	Arm circumference z-score	Height for age z-score
CCT * Round 2	0.534*** [0.142]	0.328** [0.142]	0.357** [0.181]
UCT * Round 2	0.262* [0.140]	0.130 [0.139]	0.149 [0.179]
CCT * Round 3	0.183 [0.143]	0.244 [0.159]	0.289* [0.155]
UCT * Round 3	0.013 [0.141]	-0.073 [0.161]	-0.129 [0.155]
Round FE?	Yes	Yes	Yes
Village FE?	Yes	Yes	Yes
Age & Gender FE?	Yes	Yes	Yes
Number of observations	7361	7075	7016
<i>P-values testing equality between CCT and UCT</i>			
CCT * Rd2 = UCT * Rd2	0.012	0.035	0.060
CCT * Rd3 = UCT * Rd3	0.085	0.006	0.000

Anthropometric Impacts of Cash Transfers, Mothers versus Fathers

Variable:	Weight for age z-score	Arm circumference z-score	Height for age z-score
CTF * Round 2	0.518*** [0.141]	0.314** [0.139]	0.313* [0.178]
CTM * Round 2	0.262* [0.140]	0.128 [0.143]	0.186 [0.184]
CTF * Round 3	0.162 [0.143]	0.123 [0.163]	0.143 [0.157]
CTM * Round 3	0.024 [0.140]	0.020 [0.159]	-0.007 [0.157]
Round FE?	Yes	Yes	Yes
Village FE?	Yes	Yes	Yes
Child Age FE?	Yes	Yes	Yes
Number of observations	7361	7075	7016
<i>P-values testing equality between CCT and UCT</i>			
CTF * Rd2 = CTM * Rd2	0.017	0.048	0.262
CTF * Rd3 = CTM * Rd3	0.153	0.384	0.169

CCT and adolescent health outcomes including HIV prevention

- Traditionally CCTs target education outcomes as well as mother/child health outcomes.
- More recently they have also been tested as a way to influence adolescent/young adults health outcomes and behaviors, in particular for HIV prevention.

\$ → ↓ HIV?



STIs?
HIV?



REPAIRING
RADIO
SCREENS
DECK
&
BATTERY

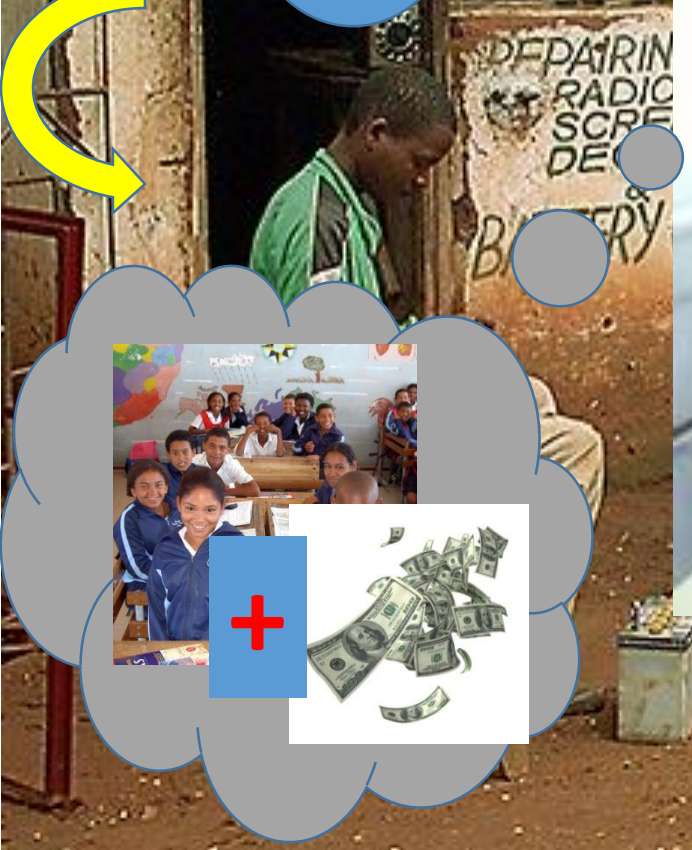


Baird, Garfein, McIntosh and Özler, 2012.

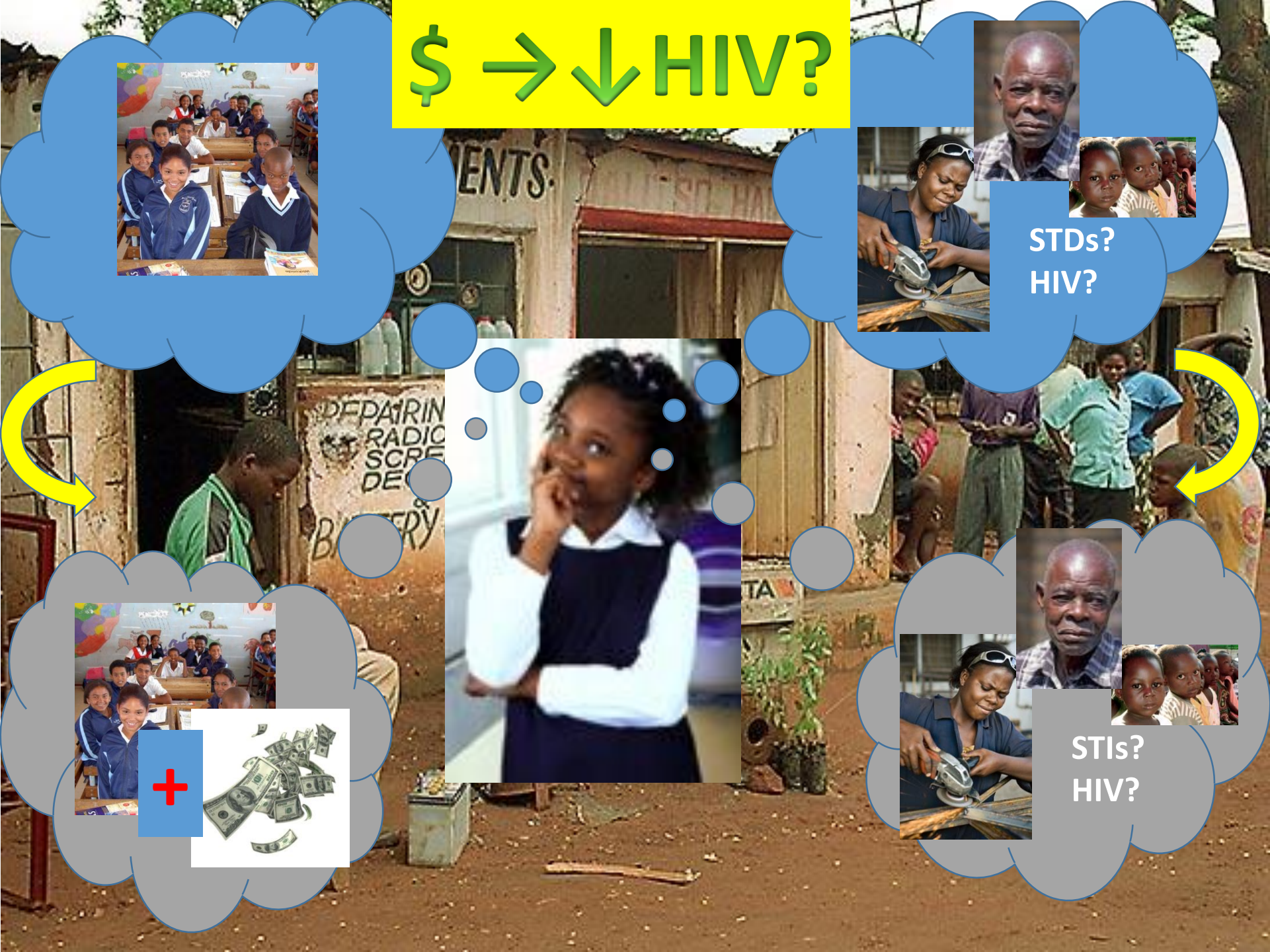
\$ → ↓ HIV?

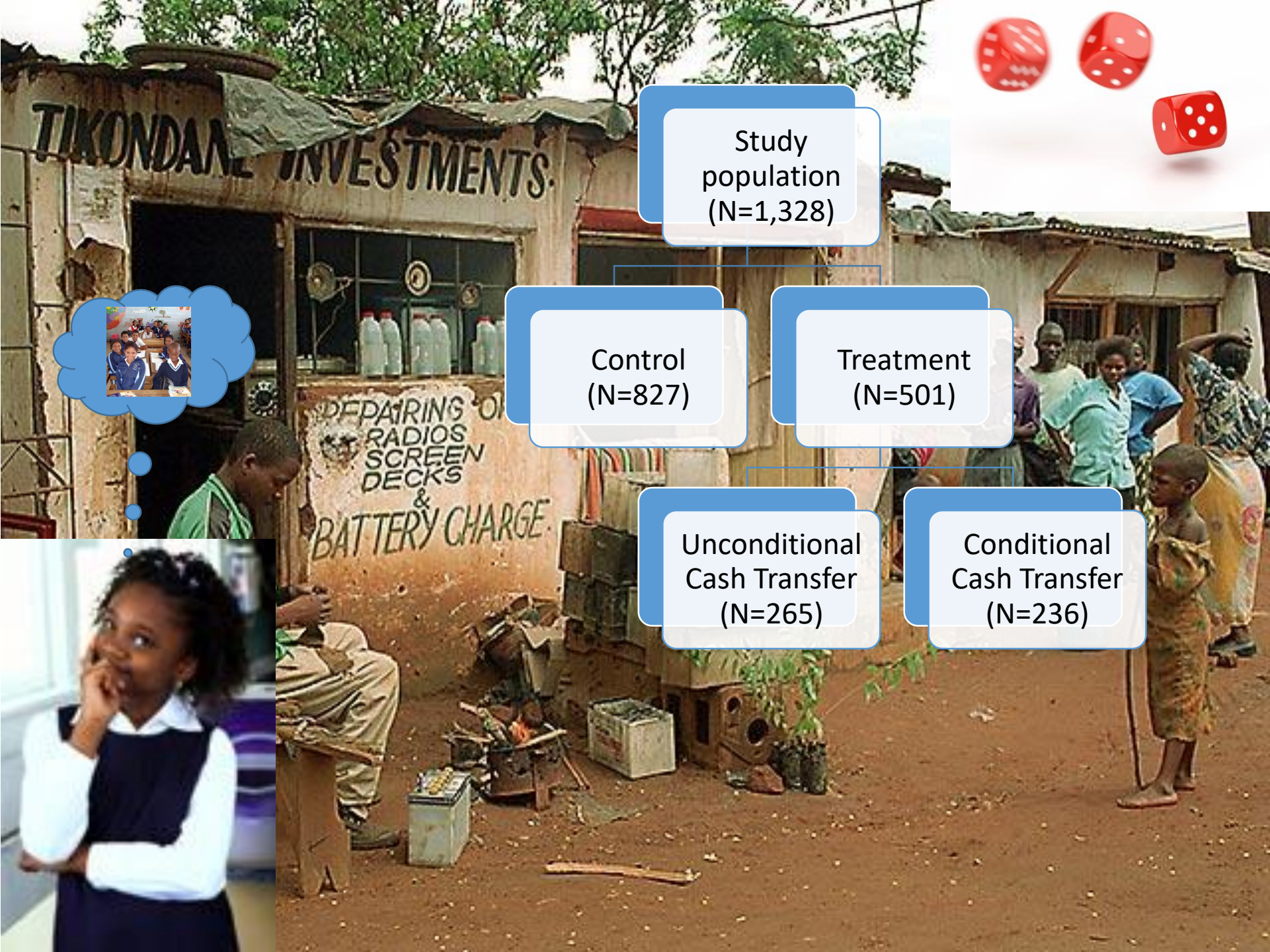


STDs?
HIV?



STIs?
HIV?





Study population
(N=1,328)

Control
(N=827)

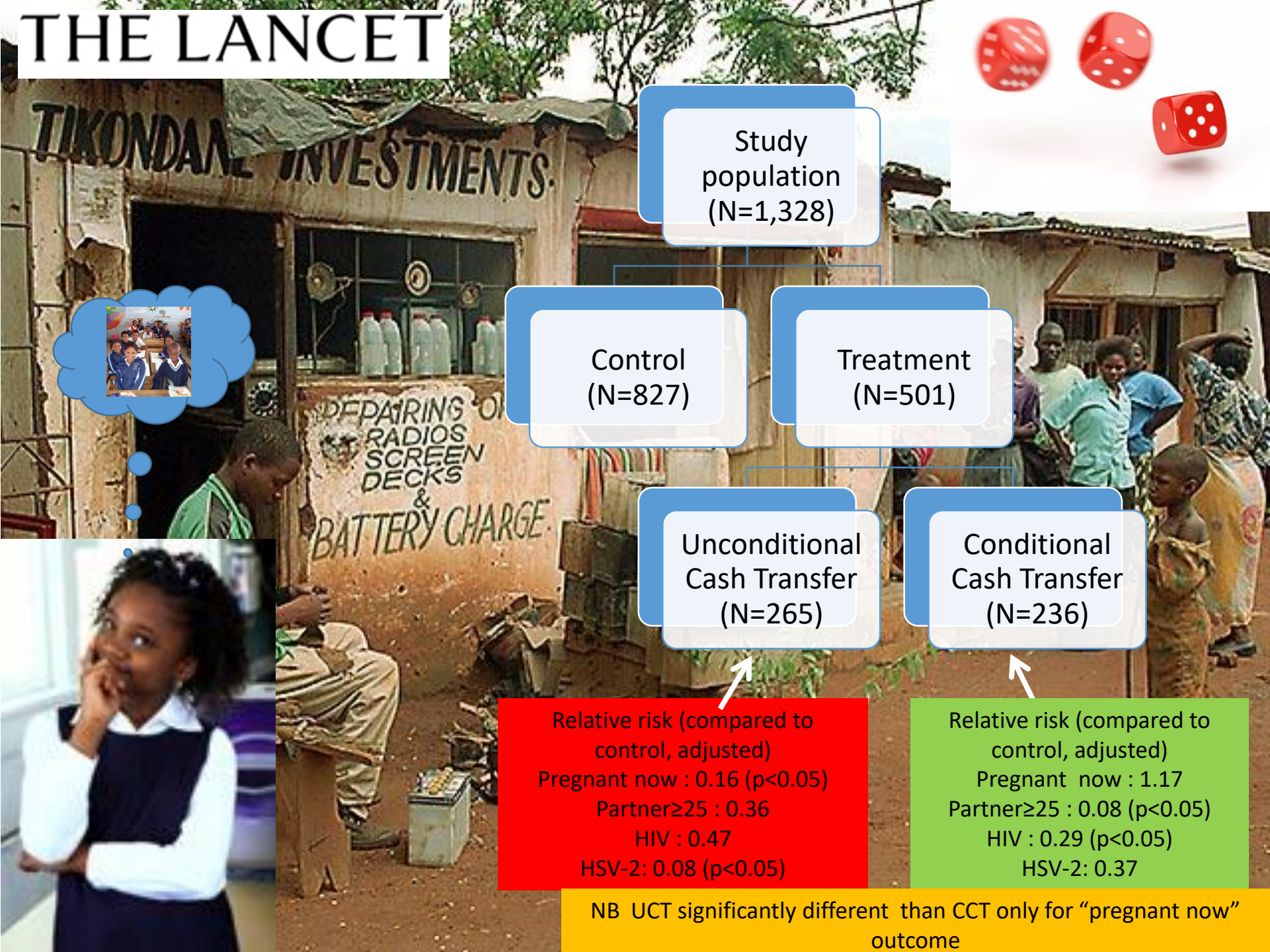
Treatment
(N=501)

Unconditional
Cash Transfer
(N=265)

Conditional
Cash Transfer
(N=236)



THE LANCET



World Bank rewards safe sex to boost fight against Aids in Africa

Funds of \$1.8m to back trial in Tanzania

By Andrew Jack in London

step in the fight to tackle Aids, which claims 2m lives a year.

In spite of billions of dollars spent annually on treatment and prevention worldwide, there were about 2.5m new HIV infections in 2007, predominantly in Africa.

Carol Medlin from the University of California, San Francisco, one of the researchers, said "We hope this 'reverse prostitution' will make people think hard about the long-term consequences of their short-term

year unveiled a project to boost school attendance.

The designers of the Tanzanian programme believe that payments of \$45 when combined with careful counselling could play an important role in reducing HIV infection, especially for vulnerable young women.

The study will be conducted by the Ifakara Health Research and Development Centre in Tanzania, in conjunction with researchers from the University of California, Berkeley, the University of California, San Francisco and the World Bank.

The Tanzanian trial programme, which is still subject to fine-tuning and ethical approval, will not specifically test for HIV, which is costly and already widely conducted in the country. It will use proxies including gonorrhoea, and guarantees any participant found to be infected receives state treatment.

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Cash for safe sex

Bribing Africans to be careful is bizarre - and worth a try

The phrase "new and daring" is not often paired with the words "healthcare intervention" but this idea goes beyond eye-patching young Tanzanians are to be bribed to stay HIV negative.

A consortium that includes the William and Flora Hewlett Foundation and the World Bank is funding the experiment. Several thousand 15 to 20-year-olds in rural Tanzania will be given advice on sexual health, regularly tested for infections and paid almost \$50 a year if the tests are negative.

The scheme will cause controversy. Are the funders saying young Tanzanians cannot be trusted to do what is good for them without a bribe? Yet the cash may increase the bargaining power of young women and give them an alternative to accepting money from older boyfriends. Cash today may be a more powerful incentive than the risk of an unseen killer disease many years hence.

In the face of an appalling Aids epidemic, we should overcome our unease.

The question should be: can this plan really work? It might. Such "conditional cash transfer" programmes have become popular since the success of Mexico's Pro-grew programme, which paid parents if their children attended school and went to the health clinic. The approach has even been imitated in New York.

Importantly, the scheme is to be evaluated in a controlled trial. That is welcome. Too few development policy ideas are given as much as a new drug would be tested. That is welcome. Too few have learnt something valuable but that will not be the end of the story. The pilot would need to be scaled up and funded to the tune of many millions of dollars a year in Tanzania alone. The country's healthcare system might not cope.

The world of development policy needs more dangerous ideas, rigorously evaluated. This one is a long shot. It should be supported anyway.

\$ → ↓ HIV?

STIs?
HIV?



~~STIs~~
~~HIV~~




\$ → ↓ HIV?

STIs?
HIV?



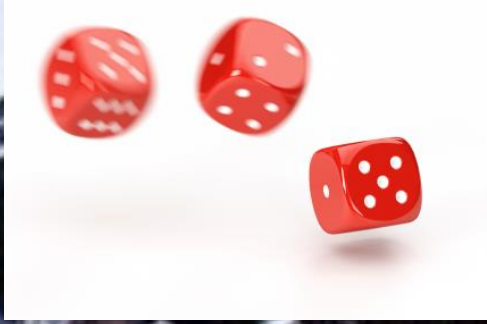
STIs?
HIV?



~~STIs~~
~~HIV~~



~~STIs~~
~~HIV~~



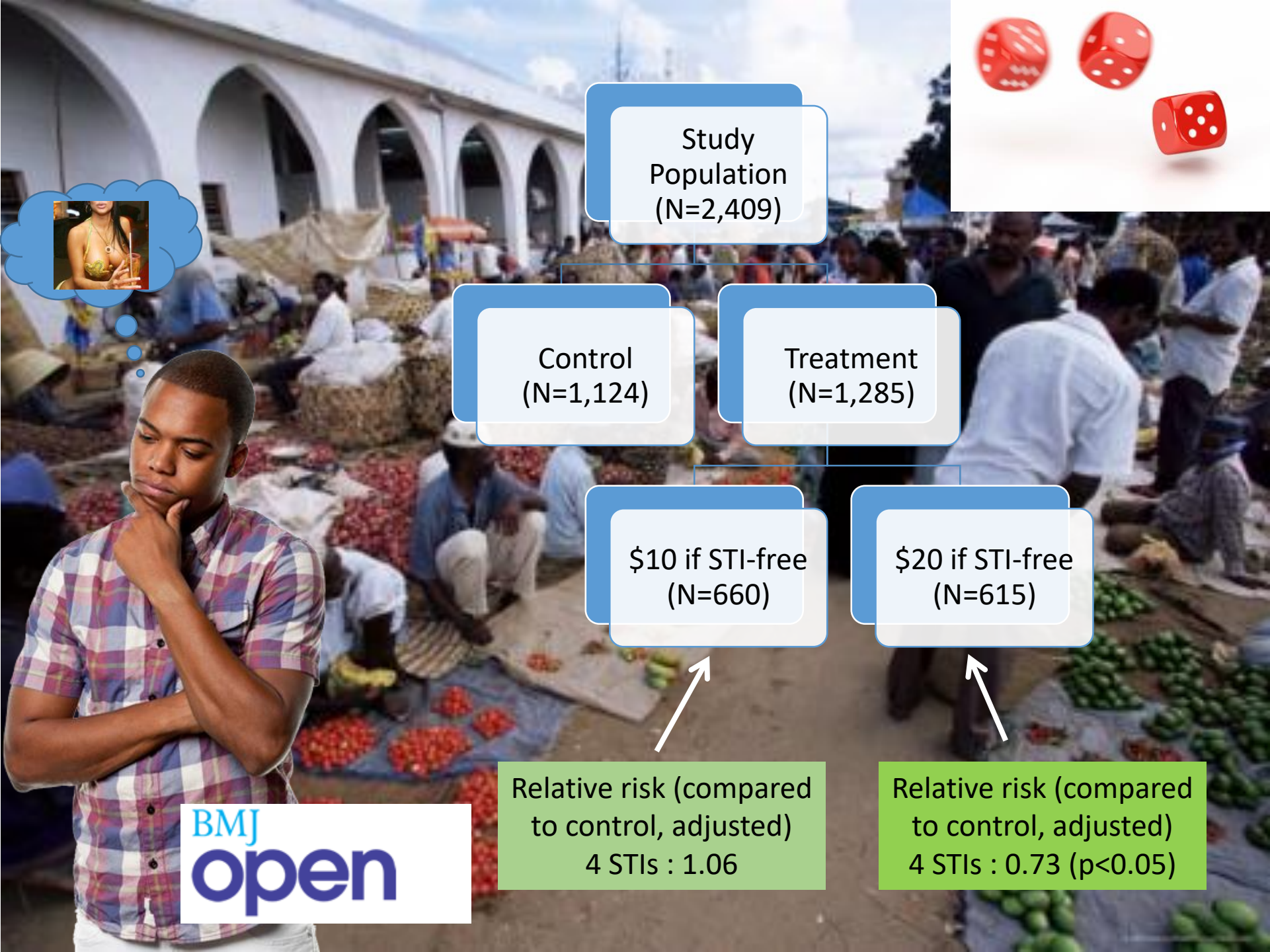
Study Population
(N=2,409)

Control
(N=1,124)

Treatment
(N=1,285)

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

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



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)

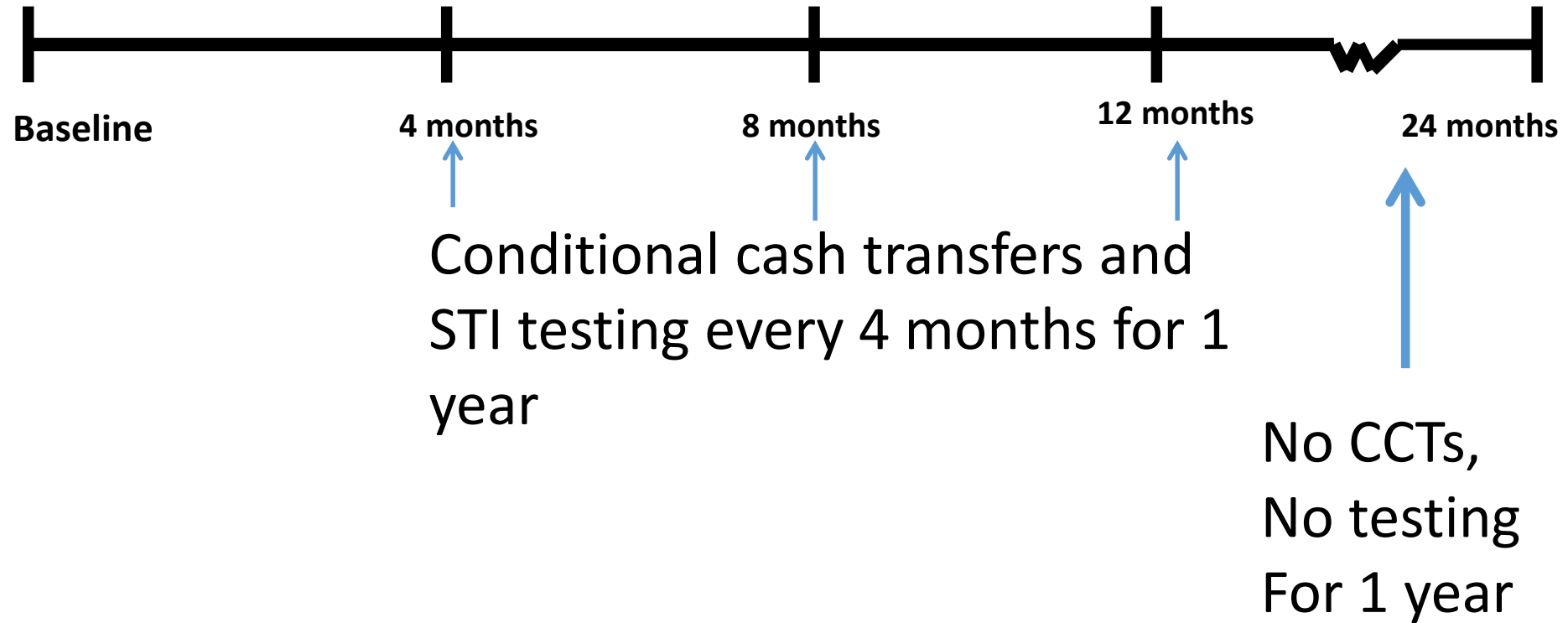
BMJ
open



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.



Nice idea, but how do you scale it up?




Lotteries as incentives for HIV prevention in Lesotho





→ ↓ HIV?


STIs?
HIV?



~~STIs~~
~~HIV~~

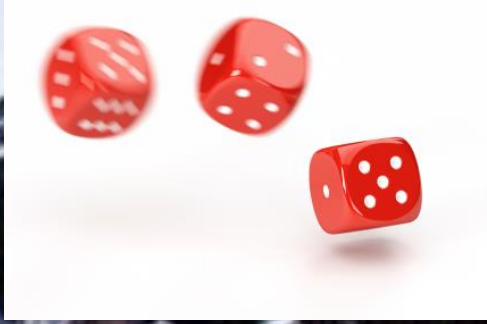


STIs?
HIV?




STIs
HIV



Study Population
Men and Women aged
18-32 (N=3,029)

Control
(N=1,208)

Treatment
(N=1,821)

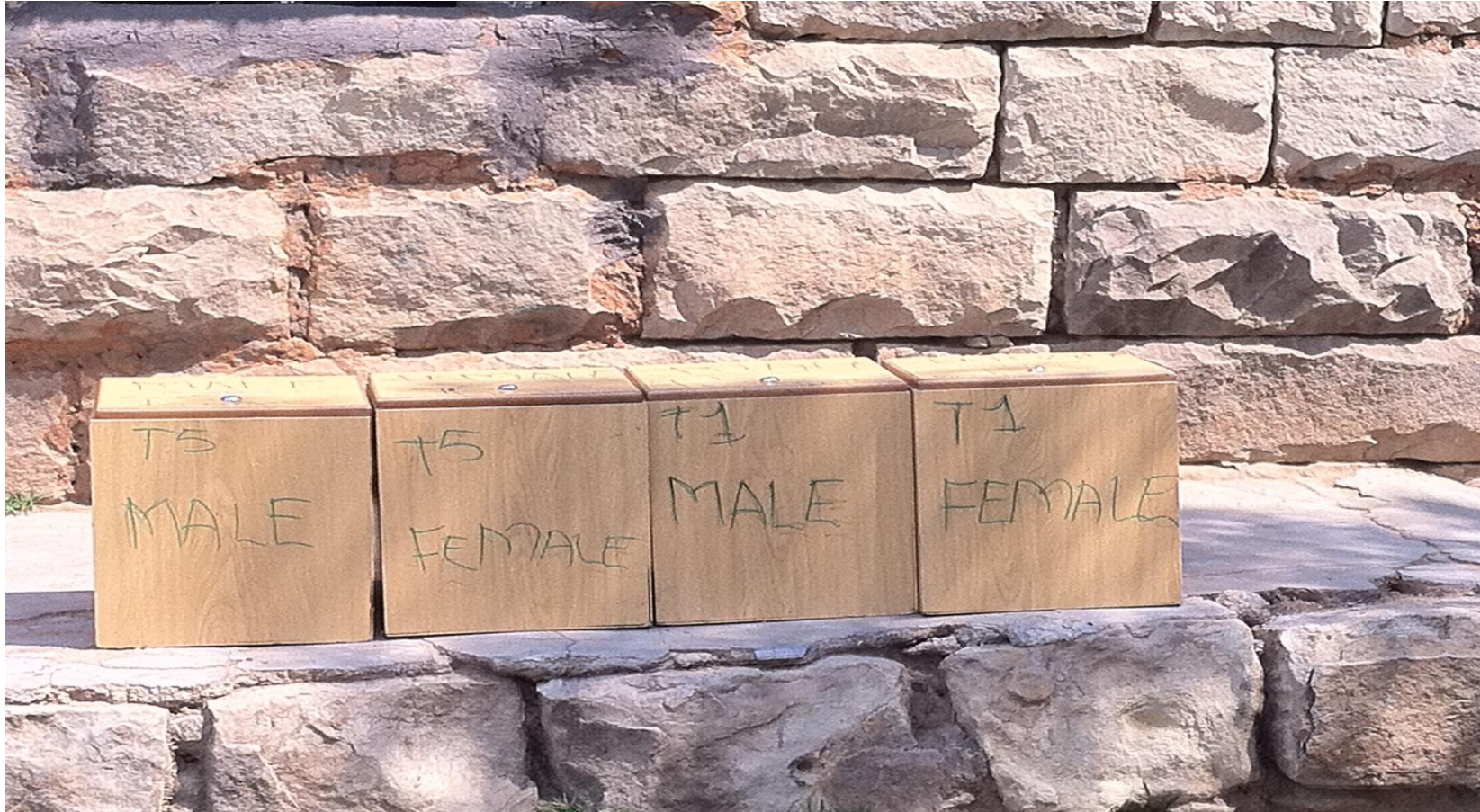
Lottery ticket for
\$100 if STI-free
(N=962)

Lottery ticket for
\$50 if STI-free
(N=859)

Mobile clinic tested for syphilis and Trichomonas every four months over 2 years + HIV at baseline and months 16, 20 and 24



If in lottery intervention groups (T1 and T5) and STI negative, name entered in lottery boxes.



Winners announced and received lottery prizes at public village level ceremonies



After 2 years, **HIV incidence is 22% lower** in the 2 lotteries groups, effect strongest for women




Prevalence of curable STIs decreased and safe sexual behavior increased.



For high-risk individuals, number of risky sexual encounters reduced by as much as **62 percent**.





HIV incidence can be reduced using financial incentives for remaining STI free

A lottery design is easier and cheaper to scale-up

Risk takers love lotteries

Future work: Swaziland

- Evaluate a combination of conditional cash transfers for education and lottery incentives for HIV prevention for young women aged 14-22.
- Test “scaled-up” version of the lottery: no STI test for everybody, but only for the lottery winners, who will win their prize if they are STI negative.

Incentives for safe sex for female sex workers in Dar-es-Salaam



Non financial incentives: using information and communication technology (ICT)

Mobile phone technologies improve adherence to antiretroviral treatment in a resource-limited setting: a randomized controlled trial of text message reminders

**Cristian Pop-Eleches^{a,b,*}, Harsha Thirumurthy^{c,d,*},
James P. Habyarimana^{e,*}, Joshua G. Zivin^f, Markus P. Goldstein^g,
Damien de Walque^g, Leslie Mackeen^h, Jessica Haberer^{i,o},
Sylvester Kimaiyo^j, John Sidle^{k,l}, Duncan Ngare^m and
David R. Bangsberg^{n,p}**

Objective: There is limited evidence on whether growing mobile phone availability in

Use of SMS reminders to improve adherence to antiretroviral treatment among HIV/AIDS patients in Kenya (AIDS, 2011)

- Adherence to antiretroviral treatment is crucial for treatment success and avoiding the development of resistances
- Study in Kenya among recent enrollees in HIV/AIDS clinic
- Each participant received a cell phone
- Received regular reminders by SMS to take their pills
- Adherence was measured using medical event monitoring system (MEMS) caps

Medication Event Monitoring System (MEMS) TrackCap



- ◆ The MEMS TrackCap is a medication bottle cap containing microelectronics that record each time the bottle is opened and closed
- ◆ The TrackCap CR provides a means of measuring a patient's drug taking behavior

Variation in frequency and content of SMS reminders

Frequency: Daily or Weekly

Content:

- Simple: “This is your reminder”
- Supportive: “This is your reminder. Be strong and courageous, we care about you”

Results

- 53% of participants receiving *weekly* SMS reminders achieved adherence of at least 90% during 48 weeks of the study, compared with 40% of participants in the control group ($P = 0.03$).
- Significantly less likely to experience treatment interruptions > 48 h during the 48-week follow-up period than control group.
- No impact of *daily* SMS reminders: daily reminders intrusive, or habituation (diminishing response to repeated input)?
- The content of the message (simple or “supportive”) made no difference.
- Conclusion: ICT such as reminders can be an efficient tool for optimal treatment response by patients, but need to tailor well.

Muito obrigado!