

## **Title**

The use of cash transfers for HIV prevention – Are we there yet?

## **Authors**

Jessica Taaffe\*, Nejma Cheikh, David Wilson

The World Bank Group, Washington DC, USA

Corresponding author: Jessica Taaffe, [jtaaffe@worldbank.org](mailto:jtaaffe@worldbank.org)

## **Abstract**

Poverty and social inequality are significant drivers of the HIV epidemic and are risk factors for acquiring HIV. As such, many individuals worldwide are at risk for new HIV infection, especially young women in East and Southern Africa. By addressing these drivers, social protection programs may mitigate the impact of poverty and social inequality on HIV risk. There is reason to believe that social protection can be used successfully for HIV prevention; social protection programs, including cash transfers, have led to positive health outcomes and behavior in other contexts, and they have successfully been used to promote education and increased income and employment opportunities. Furthermore, cash transfers have influenced sexual behavior of young women and girls, thereby decreasing sexual risk factors for HIV infection. When HIV outcomes have been measured, several randomized controlled trials have shown that indirectly, cash transfers have led to reduced HIV prevalence and incidence. In these studies, school attendance and safer sexual health were directly incentivized through the cash transfer, yet there was a positive effect on HIV outcomes. In this review, we discuss the growth of social protection programs, their benefits and impact on health, education, and economic potential, and how these outcomes may affect HIV risk. We also review the studies that have shown that cash transfers can lead to reduced HIV infection, including study limitations and what questions still remain with regard to using cash transfers for HIV prevention.

**Key words:** Cash transfer, unconditional cash transfer, conditional cash transfer, education, HIV prevention, social protection

## **Introduction**

Effectively addressing the global HIV/AIDS epidemic requires more than just taking traditional approaches to HIV prevention, such as promoting safe sex through condom use and partner reduction. It also requires addressing and developing interventions that take into account the significant social and structural drivers of the HIV epidemic, namely poverty and inequality.

Social protection programs cover a wider range of issues and purposes, and they are increasingly being used to address structural causes of poverty and inequality, including reducing the risks and vulnerabilities associated with it. These programs include cash/income support and non-cash transfers to public works, food and nutrition assistance, and institutional improvement. Among them, cash transfers are the most widespread, and they are growing rapidly in Africa and other countries around the world. Unconditional cash transfer (payment is attached to individual/household achievement of a specific outcome or behavior) programs currently exist in 130 countries (World Bank, 2015), and have nearly doubled over the past five years from 21 to 40 African countries having them. Use of conditional cash transfers (payment is given to an individual/household if a specific outcome or behavior is achieved) is also growing rapidly globally, from 27 in 2008 to 64 in 2014.

Accordingly with the growth of cash transfer programs worldwide, their use for HIV prevention is increasingly being considered and evaluated. There is a great body of evidence, including systematic reviews of it, demonstrating successful outcomes when cash transfers have been used in education and health and to improve economic potential (Department for International Development (DFID), 2011; Lagarde, Haines & Palmer, 2009; Saavedra & Garcia, 2012). Directly and indirectly, cash transfers have also had positive effects on sexual and reproductive health, HIV-risk behaviors, and HIV outcomes. In this paper, we will discuss the evidence evaluating cash transfer effectiveness as it relates to its use for HIV prevention.

## **Social protection and cash transfers for improving education, health, and economic potential**

Social and structural stressors, such as lack of education, poverty, hunger, community and sexual violence, and gender inequality, can lead to increased HIV-risk behaviors. These behaviors include transactional sex, age-disparate sex, multiple partners, sex while using substances, and unprotected sex. Indeed, women engaged in sex work have recounted situations that led them into and

kept them in sex work, such as having experienced violence and unwanted pregnancy, which led to school dropout and needing to earn income to take care of children (Mbonye, Nalukenge, Nakamanya, Nalusiba, King, Vandepitte & Seeley, 2012). It is common for female fish traders to exchange sex for better access to fish or prices from fishermen in fishing communities in southern Malawi (MacPherson, Sadalaki, Njoloma, Nyongopa, Nkhwazi, Mwapasa *et al.*, 2012), putting themselves at increased risk for HIV in these specific communities which are known to have high HIV transmission.

Education also affects HIV risk. Early sexual debut is more common among the least educated (Doyle, Mavedzenge, Plummer & Ross, 2012), and students in school have smaller and safer sexual networks (Hargreaves & Boler, 2006; Hargreaves, Morison, Kim, Bonell, Porter, Watts *et al.*, 2008b). Educated women tend to have later sexual debut, marriage and pregnancy, use condoms more often, and enjoy better earning potential (World Bank, 2002), and school attendance is associated with a reduction in lifetime sexual partners (Hargreaves *et al.*, 2008b).

Direct associations between educational attainment and HIV infection risk or HIV prevalence have been mixed. Some studies have found an association between higher education and higher HIV prevalence or a likelihood of being HIV seropositive, especially early in the epidemic (Fortson, 2008; Hargreaves & Glynn, 2002; Magadi & Desta, 2011). In contrast, many other studies have found that educational attainment is protective against HIV infection (Bärnighausen, Hosegood, Timaeus & Newell, 2007; Behrman, 2015; Brent, 2009; Hargreaves *et al.*, 2008b; Pettifor, Levandowski, MacPhail, Padian, Cohen & Rees, 2008). Analysis of HIV prevalence trends over time suggests that higher HIV prevalence patterns have shifted into populations with lower education levels and that HIV infections among those with higher education have consistently declined over time (de Walque, Nakiyingi-Miiro, Busingye & Whitworth, 2005; Fylkesnes, Musonda, Sichone, Ndhlovu, Tembo & Monze, 2001; Hargreaves, Bonell, Boler, Boccia, Birdthistle, Fletcher *et al.*, 2008a). Beyond these associations, a recent study used a regression discontinuity natural experiment to assess the causal effect of additional schooling; they found that, a decade later, HIV prevalence was 17% among those receiving one additional year's schooling and 25% among those who did not (De Neve, Fink, Subramanian, Moyo & Bor). Still, while the majority of the evidence supports a protective effect of education against HIV infection, the strength of the protective effect of education on HIV varies among countries (Asiedu, Asiedu & Owusu, 2012; Hargreaves *et al.*, 2008a) and may be context specific.

Evidence that social protection programs, in particular, cash transfers, directly and indirectly result in positive social and health outcomes has led to greater consideration of incorporation of these programs into HIV prevention efforts. Specifically, many impact evaluations and systematic reviews have found that cash transfers programs have been successful in improving uptake of health

services (Attanasio, Battistin, Fitzsimons & Vera-Hernandez, 2005; Bassani, Arora, Wazny, Gaffey, Lenters & Bhutta, 2013; Gertler, 2000; Gertler & Boyce, 2001; Glassman, Duran, Fleisher, Singer, Sturke, Angeles *et al.*, 2013; IFPRI (International Food Policy Research Institute), 2003; Lagarde *et al.*, 2009; Maluccio & Flores, 2005; Morris, Flores, Olinto & Medina, 2004; Ranganathan & Lagarde, 2012), promoting education and school attendance (Alam, Baez & Carpio, 2011; Baez & Camacho, 2011; Baird, Ferreira, Özler & Woolcock, 2013; Department for International Development (DFID), 2011; Saavedra & Garcia, 2012), decreasing risky sexual behavior and activity (Baird, Chirwa, McIntosh & Ozler, 2010; Baird, Garfein, McIntosh & Ozler, 2012; Cluver, Boyes, Orkin, Pantelic, Molwena & Sherr, 2013), and improving income and social opportunities for women (Benderly, 2011; Fiszbein, 2009), all of which can have a positive effect on reducing HIV transmission through its social and structural drivers.

Education is an important driver of socio-economic growth and poverty reduction, and it especially can serve to empower young girls and women within their communities. As such, cash transfers have been used to improve education and promote life-long learning and opportunities, while also having positive effects on health. And, an abundance of impact evaluations have shown they are effective in doing so. For instance, in several Latin American countries, Pakistan, and Tanzania, conditional cash transfers (CCT) have been used to incentivize school attendance, which resulted in increased cumulative years of schooling and likelihood of completing primary and secondary school. In Pakistan, the likelihood of girls completing secondary school increased by 4-7% (Alam *et al.*, 2011), and in Colombia, early exposure to CCT led to a 4-8% increase in finishing high school, especially among rural girls (Baez & Camacho, 2011). Program participants in Tanzania were also more likely to purchase health insurance, and the greatest improvements in health were seen among the poorest (Evans, Hausladen, Kosec & Reese, 2014). In Malawi, CCT increased school attendance by 13.9% and unconditional cash transfers (UCT) did so by 6.3% (Baird, McIntosh & Özler, 2011). Overall, a systematic review found that cash transfer programs increase the odds by 36% that a child in a household given a transfer will be enrolled in school, and this impact is greatest at the secondary school level (4% increase for primary school enrollment vs. 31% for secondary school). The pooled analysis also showed that school attendance measures are improved by 42% and 65% (UCT and CCT) and the impact is greatest in females (Baird *et al.*, 2013; Department for International Development (DFID), 2011; Saavedra & Garcia, 2012).

Other transfers, such as nutritional supplements and school feeding programs, also have had immediate and long-term effects on health, education, and economic potential. School feeding programs in Burkina Faso, Uganda, Kenya, Bangladesh, and India have led to increased school enrollment by 6 – 20 percentage points and have also reduced anemia in Uganda by 20% and malnutrition in Indonesia by 15% (Adelman, Alderman & Konde-Lule,

2008;Ahmed, Quisumbing, Nasreen, Hoddinott & Bryan, 2009;Jayaraman & Simroth, 2015;Kazianga, Walque & Alderman, 2009). Furthermore, safety nets that provided nutritional supplements in Guatemala to children less than 2 years of age led to the children becoming adults with 46% higher wages than those that did not receive supplements (Hoddinott, Maluccio, Behrman, Flores & Martorell, 2008). Similarly, large cash transfers given in the form of grants had an effect on earning potential in Uganda; recipients often invested the money into vocational training or business assets, leading to increases in monthly earnings by 49 and 41% in 2 and 4 years (Blattman, Fiala & Martinez, 2013)

Cash transfers are also effective when directed towards overall health and health behavior change, and they have been shown to increase uptake of preventative and curative services and improve health outcomes in a variety of contexts (Bassani *et al.*, 2013;Glassman *et al.*, 2013;Lagarde *et al.*, 2009;Ranganathan & Lagarde, 2012). Based on attendance at health centers, CCT have increased uptake of health service usage in Nicaragua, Columbia, Honduras, and Mexico (Attanasio *et al.*, 2005;Gertler, 2000;Gertler & Boyce, 2001;IFPRI (International Food Policy Research Institute), 2003;Maluccio & Flores, 2005;Morris *et al.*, 2004) and in Colombia and Mexico, CCT beneficiaries experienced lower illness rates (Attensio & Gomez, 2004;Gertler, 2000;Gertler & Boyce, 2001). In a 5-country analysis health service utilization, primarily for preventative child health services, was increased by 14%(Bassani *et al.*, 2013). Glassman *et al* showed that utilization of maternal and newborn health services was also improved by cash transfers, leading to significant and some substantial increases in prenatal monitoring, birth attended by skilled personnel, and birth a health facility in pooled analyses of three to seven countries (Glassman *et al.*, 2013). There is also preliminary evidence that use of cash transfers can lead to improved ART adherence among adolescents (Cluver, Orkin, Boyes & Sherr, 2014).

Furthermore, there is evidence that child-focused transfers have also reduced risky sexual behavior. A school focused CCT program for girls in Malawi led to declines in sexual activity and onset of it in beneficiaries, compared with non-beneficiaries (Baird *et al.*, 2010), and Handa *et al* similarly found that Kenya's Cash Transfer for Orphans and Vulnerable Children program was significantly associated delayed sexual debut, reducing the odds of debut by 31% (Handa, Halpern, Pettifor & Thirumurthy, 2014). However, unlike a state administered cash transfer in South Africa that was associated with reduced transactional and age-disparate sex in its beneficiaries (Cluver *et al.*, 2013), Kenya's program did not have a significant effect on sexual partner characteristics, including relative age and school enrollment status (Rosenberg, Pettifor, Thirumurthy, Halpern & Handa, 2014). Kenya's CT-OVC also did not affect specific sexual behavior risks such as condom usage, number of sexual partners, or transactional sex (Handa *et al.*, 2014).

There is much evidence supporting positive short-term outcomes influenced through the use of cash transfers, however, less evidence exists to support the

durability of these outcomes. So far, evaluations have shown that the effects from cash transfers have been mostly sustained during the intervention period and through a few years following the study. In select cases, where longer-term follow-up has been done, long-term impact has been documented. For instance, in Nicaragua, seven years after cash transfers to increase school enrollment and attendance ended, recipients that participated earlier (therefore had longer exposure to the schooling intervention) achieved higher grades in math and language (Barham, Macours & Maluccio, 2013). Still, strong evidence is lacking that outcomes resulting from cash transfers can be sustained without continued program implementation.

### **Cash transfers for HIV prevention**

There is ample evidence that cash transfers can be effective at mitigating the drivers of HIV risk, ie, poverty, social and economic inequality, and education, and improving health outcomes. However, less is known about whether they can reduce HIV transmission. Most studies have looked at how cash transfers affect HIV risk through sexual behavior, in which the majority of them have resulted in positive outcomes (Pettifor, MacPhail, Nguyen & Rosenberg, 2012), though only a few have specifically used HIV infection as a direct outcome. All of the studies doing so are randomized controlled trials (RCT), and while some of them are ongoing, others have been completed, with encouraging results. Specifically, these studies have shown efficacy in reducing HIV prevalence and incidence and STI prevalence in various communities in Malawi, Lesotho, and Tanzania, and South Africa.

#### ***Tanzania***

The RESPECT (Rewarding STI Prevention and Control in Tanzania) study was carried out at the Ifakara Health and Demographic Surveillance Site in rural Tanzania to incentivize less risky sexual behavior through conditional cash transfers, using sexually transmitted infection (STI) outcomes as an endpoint. 2 399 participants between the ages 18-30 were randomized into three intervention arms: 1) Low value conditional cash transfer (\$10 each time), 2) high-value conditional cash transfer (\$20 each time), 3) control. Testing of HIV, HSV-2, and syphilis, and four curable STIs (*Chlamydia trachomatis*, *Neisseria gonorrhoeae*, *Trichomonas vaginalis*, and *Mycoplasma genitalium*) and treatment was done every 4 months over one year, and those remaining STI-free (specifically from *C trachomatis*, *N gonorrhoeae*, and *T vaginalis*) received the cash transfer. At the end of the study, a 25% reduction in STI prevalence was observed for the four curable STIs, but only in the high value CCT arm (de Walque, Dow, Nathan, Abdul, Abilahi, Gong *et al.*, 2012).

While the results are promising, this study has several limitations. First, the effect of the intervention was not observed in early rounds, bringing up issues on the length of time for the intervention to achieve impact, and its long-term

sustainability. Second, a statistically significant effect was only seen in the highest cash transfer group; no significant effects were seen in the lower cash transfer value group, which suggests that more than just a “nudge” is needed to impact behavior through cash transfers. Also, the effects are strongest in the lowest socioeconomic status (SES) stratifications, and the level of the cash transfer value relative to SES is important. Finally, the reduction in prevalence was not in HIV infection, but rather other STIs. However, the study was not powered to primarily analyze changes in HIV infection (HIV, HSV2, and syphilis were secondary endpoints), and as STI infection increases risk of acquiring HIV, decreased STI prevalence could have indirect benefits on HIV prevention (de Walque *et al.*, 2012).

Following up one year after the trial ended, without further CCT-incentives, the longer-term effect of the intervention was investigated. Within both high and low value CCT groups, the effect of the CCT was sustained among men, whereas, for women, it was not. This suggests that learning may be a component of the CCT effect on men, and it may allow for phasing out of cash incentives among men. However, for women at risk, such incentives may need to be sustained (de Walque, Dow, Nathan & Medlin, 2013).

### **Malawi**

In Malawi, the Schooling, Income, and Health Risk (SIHR) study showed that cash transfers for schooling can reduce HIV infections in adolescent girls. The study was a cluster RCT was carried out in the Zomba District of Malawi and targeted 1 289 never-married females between the ages 13 – 22. CCT (for school attendance) and UCT payments (no school attendance required), or no payments (control) were made to students and parents in randomized amounts (\$5–\$15), and the effects of incentivizing school attendance and providing income to young girls on HIV and HSV-2 prevalence was evaluated at the end of the 18 month study (Baird *et al.*, 2012).

Offering girls and parents up to \$15 dollars to stay in school had a statistically significant effect on HIV prevalence, reducing it by 70% from the control group, and HSV-2 prevalence in the combined intervention groups (unconditional and CCT) was reduced by 76% (Baird *et al.*, 2012). Additionally, the positive effects of these CCTs went beyond reducing HIV and HSV-2 infections; girls receiving these CCTS 1) were 33% less likely to be sexually active, 2) reported 25% fewer sexual partners, 3) were 40% less likely to have an early marriage, 4) had a 30% lower rate of teenage pregnancy, and 5) had a 35% lower likelihood of dropping out of school (Baird *et al.*, 2010; Baird *et al.*, 2012).

The changes in sexual behavior are particularly notable, because the study was designed to specifically reward girls and parents for school enrollment, not directly incentivize safer sexual behavior. However, here, an “income effect” was responsible for the success of the CCT on reducing HIV prevalence, through the

effects of cash payments on sexual behavior. For instance, girls receiving payments not only had less sex, but when they did, they chose safer (younger) partners (2010a; Baird *et al.*, 2010; Baird *et al.*, 2012). The HIV infection rate in the partners of girls receiving CCT was estimated to be half of the rate in partners of control group, and after a year, schoolgirls receiving cash payments reported avoiding older men, who are wealthier and are far more likely to have HIV. Along the same lines, sexual partners tended to be younger in intervention group, and sexual activity with them was also less frequent. It is also possible that cash transfers reduced transactional sex, as, at the study outset, a quarter of sexually-active participants said they started relationships because they “needed assistance” or “wanted gifts/money.” Such behavior is very common among girls and young women in this context; 90% of sexually-active schoolgirls in the control group said they received ~\$6.50 a month in gifts or cash from their partners, appreciable relative to the national per capita GDP of \$287.5 (2010a; 2010b).

The study does have some limitations. The absence of baseline HIV or HSV-2 data does not allow for a comparison of incidence between trial groups, and changes in prevalence over an 18-month period are subject to scrutiny of selection bias. However, the similarity in baseline variables and characteristics across groups strengthens the assertion that the prevalence differences in biological outcomes at the end of the study are truly real. Furthermore, the study was not powered to compare small differences in outcomes between the conditional vs. unconditional arms, especially when they are quite small, as was the case with differences in HIV events (only 7 occurred among conditional and unconditional arms vs 17 in the control group). And, the short time frame of the study did not allow for evaluation of the long-term effects of the cash transfer to provide any insight into the sustainability of this type of HIV prevention intervention. In fact, unpublished results from a 5-year follow-up suggest that none of the effects were sustained in girls in the program, including HIV prevalence (Baird, Chirwa, McIntosh & Ozler, 2015). Still, like the RESPECT study, these results are very positive and only encourage additional studies, larger, longer, and in different contexts, to investigate how cash transfers can be used for HIV prevention.

## **Lesotho**

Incentivizing infection-free sexual health has also worked in Lesotho. Here, in a study of 3 426 adults aged 18 – 32 years from 5 peri-urban and rural districts, offering lottery tickets to win up to \$50 and \$100 for every 4 months participants stayed STI and HIV-free resulted in 25% lower HIV incidence than the control group, after two years. Females in the lottery intervention group had a 33% lower HIV incidence, and those in the higher value lottery group (\$100) had a reduction in incidence by 31%. Additionally, STI prevalence was dropped in all groups of the study, but the largest effect was in the high and low lottery groups,

in which decreases of 89% and 82% from baseline values were measured. While not a large effect, the intervention did have the intended affect on sexual behavior, reducing the number of risky sexual acts by 20% over the control group and also reducing the number of sexual partners, including activity with a partner with a high likelihood of HIV infection, increasing condom use, and reducing extramarital sex (Nyqvist, Corno, De Walque & Svensson, 2015).

This study differs from the other notable RCTs testing the use of cash transfers for HIV prevention, because, here, a lottery was used. Participants receive lottery tickets conditional upon their STI status, but they are only paid if they win the lottery. Thus, this system may potentially cost less than traditional cash transfer programs and is an interesting mechanism to pilot in other contexts to see if similar results can be achieved. Furthermore, this mechanism may target individuals with higher risk-taking behaviors, including sexual behavior, and have a stronger influence on them. The study observed that “risk-loving” individuals were more likely to acquire HIV infection during the trial, but the lottery intervention mitigated their HIV risk by making them behave more like risk-averse individuals (Nyqvist *et al.*, 2015).

### **South Africa**

Two large-scale trials evaluating the effect of cash transfers on HIV outcomes in South Africa have very recently released their findings. The results of both the CAPRISA 007 and HPTN 068 studies, unfortunately, have been disappointing with regard to HIV outcomes.

CAPRISA 007 was cluster randomized trial carried out in 14 schools across KwaZulu Natal, with a total of 3,217 boys and girls aged 13 years and older in Grades 9 and 10 included in the study. In schools receiving the intervention, students were offered up to approximately \$175 for participating in a youth education and skills program, academic achievement, completion of a community project, and HIV testing. While a significant reduction of nearly 30% (8.7/100 person years in intervention group, 6.2/100 person years in control group) in HSV incidence was achieved through the cash transfer intervention, there was no effect on HIV incidence (Karim, Leask, Kharsany, Humphries, Ntombela, Samsunder *et al.*, 2015). However, this study was substantially underpowered. Only 75 HIV events occurred during the trial (42 in intervention group, 33 in control group), and a sample size of 3 to 5 times greater would be required to detect a 30% impact on HIV incidence.

HPTN study, on the other hand, exclusively focused on girls between 13 – 20 in villages across South Africa, and the CCT (up to approximately \$30 monthly split between girls and their parents) was dependent on 80% school attendance. A total of 2,533 girls enrolled in grades 8-11 were included in the study. Neither school attendance nor HIV incidence was impacted by the cash transfer intervention. However, attendance was very high during this trial, nearly equal at

95% in the intervention group and 95.3% in the control group, and HIV incidence was relatively low, at 1.8% ((HPTN), 2015). The intervention did significantly impact sexual risk. Though the reduction was minor, girls receiving the intervention were less likely to have had any sexual partner in the past 12 months (35.2% vs 32.2%), had unprotected sex in the past 3 months (10.2% vs 8.1%), or experienced intimate partner violence (36.5% vs 29.6%) ((HPTN), 2015). Additionally, while no direct link between the cash transfer intervention could be made on improving attendance or reducing HIV incidence, schooling was protective against HIV infection, regardless of the study arm. The hazard ratio for risk of HIV infection in school drops out vs non drop outs was 3.21 and 3.05 for those with <80% vs ≥80% school attendance ((HPTN), 2015).

While disappointing in not showing effects on HIV incidence from cash transfer interventions, these trials do show positive evidence supporting reductions STI incidence and sexual risk in students and a protective effect of school against HIV infection. Measuring specific impacts of cash transfer interventions on HIV infection are compromised by lack of statistical power and high uptake of the behavior incentivized by the cash transfer (school attendance) in these trials.

### **Where do we go from here?**

Ample evidence suggests that social protection and cash transfers are an effective way to not only impact education, health, and income opportunities, but also impact HIV transmission through its structural and social drivers. While imperfect and limited, the few studies that have measured HIV outcomes in relation to cash transfers show promising results supporting the use of CCT for HIV prevention.

Larger studies should be carried out in different contexts, regions, and looking at the effect on range of age, gender, and other demographics to expand upon this knowledge and provide more specific evidence on how cash transfers can be most effectively used. Specifically in question is how and if cash transfers can be used to reduce HIV transmission in higher-income contexts, as preliminary success has been established primarily in low-income settings. The CAPRISA 007 and HPTN 068 studies set out to investigate the effect of CCTs on HIV incidence in a higher income context, though imperfect study design limited their ability to measure impact on HIV outcomes.

However, these recent setbacks should not discourage additional studies, as there is sufficient positive evidence from early studies to promote the continued evaluation of cash transfer use for HIV prevention. In fact, cash transfers are among the few interventions that show positive effects in several randomized controlled trials using HIV infection as an outcome. Previous reviews of HIV prevention interventions have shown repeated success with only antiretroviral therapy and voluntary medical male circumcision. Unlike these interventions, there has been no evidence yet that behavior change interventions have been

effective in reducing sexual transmission of HIV in a randomized controlled trial. (Padian, McCoy, Karim, Hasen, Kim, Bartos *et al.*, 2011;Padian, McLoy, Balkus & Wasserheit, 2010).

Moving forward, valuable lessons can be learned from the limitations of the CAPRISA 007 and HPTN 068 studies and applied to future studies of cash transfer impact on HIV prevention. Future trials must carefully consider and anticipate uptake of or baseline parameters, including desired behavior change. Studies must be appropriately powered for the context in which they are carried out, especially with regard to HIV incidence, and the additive effect of the cash transfer intervention may only be minor if desired behaviors are already high (school attendance) or low (risky sexual behavior). Additionally, consideration of the context in which the cash transfer will be implemented is equally important. For instance, cash transfers attached to academic achievement may be limited in their effect if they are applied in a limited resources educational context. Students in schools in rural or impoverished areas may not be able to achieve high levels of performance required to meet cash transfer conditions.

## **Final thoughts**

There is sufficient evidence that social protection programs, including cash transfers, have a range of positive benefits that can be directly used in and indirectly impact multiple sectors. Cash transfers themselves have been shown to increase uptake of health services, promote education and school attendance, and decrease risky sexual behavior and activity. These positive outcomes, among others, give very good reason to expand and scale-up national social protection programs and the use of cash transfers.

While promising, the evidence justifying the use of cash transfers for HIV prevention is not quite there yet and questions on this intervention remain. First, is the evidence on cash transfers and HIV robust enough? At the moment, no. Only the two studies in Malawi and Lesotho showed a positive effect on HIV outcomes and only one of them measured HIV incidence. HPTN 068 and CAPRISA 007 were unable to show any impact on HIV outcomes.

Second, will cash transfers apply equally in other contexts? This is an important question with much work left to address it. Had the South African studies been powered enough to measure impact or see a difference in school attendance, they would have shed some light on this question. However, evidence from other cash transfer evaluations, especially in health and education, do support that the strength of the effect will be very context specific.

Third, how durable are the effects of the intervention? There is very little evidence to support that the outcomes resulting from cash transfers, especially conditional ones, are durable. In cases from cash transfers for HIV where there

has been follow-up after the trial, such as in Malawi, the positive effects on education and HIV prevalence were not sustained 5 years later. However, very few preventative interventions, with the exception of vaccines or medical male circumcision for reduced HIV risk, have long-term effects without their continued application. Especially when interventions target behavior change it is expected that programs must be sustained for success. For instance, safe sexual practices are unlikely to be maintained in the absence of condom distribution and promotion programs and continued sexual health education programs. Even more, structural interventions like cash transfers are not a long-term solution or cure to the chronic problems of poverty and social inequality. Instead, these interventions only alleviate the effects of poverty and inequality while they are being used. Still, in combination with other HIV preventative interventions, cash transfers can work synergistically for more impact.

Fourth, how scalable are cash transfer programs, and can they be sustained? For certain, this is very context-specific, as the resources required to implement and sustain such programs will vary greatly at national and sub-national levels. Yet, we have examples already in which cash transfers have been implemented in the context of large-scale national programs. Take, for instance, South Africa. It has the largest and most-developed cash transfer program in sub-Saharan Africa, with the current program rooted in reforms from the late 1990's. In 1997, 3 million beneficiaries received cash transfers; in 2014, this number increased to 16 million (Garcia & Moore, 2012; World Bank, 2015). Mexico's Prospera program (a continuation of their historic Progreso/Oportunidades program) reached 6.1 million families (26 million individuals) in 2013, which is tremendous growth from its 300,000 family pilot in 1997 (Garcia & Moore, 2012; Government of Mexico, 2015). Even more, Brazil has the largest cash transfers program in world, with Bolsa Familia covering 14 million families (49 million individuals) in 2015 and having achieved this coverage in just over a decade (World Bank, 2015). Scaling cash transfer programs is possible, especially within a larger and established national social protection program. And, the growth of social protection programs in some form, including cash transfers, around the world is positive. Existing platforms and experience implementing such programs could facilitate their implementation and scalability for HIV prevention in many places.

Fifth, should and how much of financial resources be spent on cash transfer programs, especially in regard to their cost-effectiveness for HIV prevention? Currently, there is no evidence yet that, as a single intervention with a singular outcome, cash transfers are cost-effective for HIV prevention. However, across the range of development outcomes they impact, including HIV outcomes, cash transfer programs, in general, are affordable and cost-effective. Even when conditional to specific outcomes like health or education, cash transfers can have multiple positive effects spread across several development sectors. They alleviate poverty, open up opportunities for education by reducing the need for extra household income earned by children, cover the costs of seeking health services, and influence sexual behavior. In the context of these multiple positive

outcomes from one intervention, including HIV prevention, cash transfers are cost-effective. Furthermore, because the effects are spread across sectors, there is potential for costs of cash transfer programs to be shared between sectors, making them overall more affordable. If there are existing programs or platforms through which to scale-up or use cash transfers in a different way (ie, for HIV prevention), costs of such programs could be further reduced.

Finally, is conditionality necessary for cash transfer effectiveness? Enforcing conditionality requires extra resources to monitor conditions, and it may not be necessary for program success. One could argue that for HIV, conditions may not be necessary to be effective in contexts where cash transfers work through an “income effect.” In these contexts, extra income from cash transfers may reduce the motivation in adolescent girls and young women to engage in transactional sex, thereby reducing their risk for HIV infection. Indeed, for many of the outcomes in the Malawi trial, including HIV infection and sexual behavior, there was no difference between conditional and unconditional arms. Furthermore, unconditional cash transfers have been shown to be similarly effective as CCT programs in other contexts, such as in promoting school enrollment and attendance. However, the effect of the intervention is always strongest in CCT programs, with a clear gradient of effect strength by condition existence and enforcement; analysis shows that programs with explicit conditions that are monitored and enforced produce the strongest effects, followed by those with conditions that are only minimally (or not) enforced and then those without conditions. (Baird *et al.*, 2013). Still, both conditional and unconditional cash transfers could be effective at reducing HIV infection, and it will be important to consider whether or not to include conditionality in cash transfer programs, including their enforcement. In some contexts, especially those with low resources, unconditional cash transfers or minimally enforced CCTs may be suitable and effective options to facilitate scale-up and promote program sustainability.

In conclusion, enough evidence exists to warrant continued investigation and consideration of the use of cash transfers with regard to HIV prevention. This includes education-focused transfers that indirectly reduce HIV risk factors and new infections and those that directly incentivize safer sexual practices like the trial in Lesotho. The evidence may not be there yet to justify policy changes to incorporate cash transfers into HIV prevention programs, but evidence does support that they do work in other sectors that influence HIV dynamics, including education and health. Therefore, there is little reason to not support and scale-up existing programs for those positive benefits while continuing to investigate their impact on HIV outcomes.

Preventing new HIV infections will require a comprehensive approach targeting multiple risk factors for acquiring HIV, including social and structural drivers of the epidemic. Cash transfers may be an additional tool to do so, by incentivizing safer sexual behavior and addressing HIV risk factors such as poverty and low-

educational status. The intention will not be to use cash transfers alone, but in combination with other proven HIV prevention interventions in a comprehensive and integrated program. In this way, we may achieve greater impact in reducing new HIV infections.

## References:

- (2010a) *A cash transfer program reduces hiv infections among adolescent girls.*
- (2010b) 'Malawi and tanzania research shows promise in preventing hiv and sexually-transmitted infections.'  
<http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/0,,contentMDK:22649337~pagePK:64165401~piPK:64165026~theSitePK:469372,00.html>.
- (Hptn), H. P. T. N. (2015) Cash transfers conditional on schooling do not prevent hiv infection among young south african women.
- Adelman, S., Alderman, H. & Konde-Lule, J. (2008) *The impact of alternative food for education programs on child nutrition in northern uganda*. Draft. Washington, D.C.
- Ahmed, A. U., Quisumbing, A. R., Nasreen, M., Hoddinott, J. F. & Bryan, E. (2009) *Comparing food and cash transfers to the ultra poor in bangladesh*. Washington, DC.
- Alam, A., Baez, J. E. & Carpio, X. V. D. (2011) *Does cash for school influence young women's behavior in the longer term? Evidence from pakistan*, The World Bank.
- Asiedu, C., Asiedu, E. & Owusu, F. (2012) The socio-economic determinants of hiv/aids infection rates in lesotho, malawi, swaziland and zimbabwe. *Development Policy Review*, 30(3), pp. 305-326.
- Attanasio, O., Battistin, E., Fitzsimons, E. & Vera-Hernandez, M. (2005) *How effective are conditional cash transfers? Evidence from colombia*. London, UK, Institute for Fiscal Studies.
- Attensio, O. & Gomez, L. C. (2004) *Evaluación de impacto del programa familias en acción - subsidios condicionados de la red de apoyo social Bogotá, Colombia*.
- Baez, J. E. & Camacho, A. (2011) *Assessing the long-term effects of conditional cash transfers on human capital: Evidence from colombia*, The World Bank.
- Baird, S., Chirwa, E., McIntosh, C. & Ozler, B. (2010) The short-term impacts of a schooling conditional cash transfer program on the sexual behavior of young women. *Health Econ*, 19 Suppl(pp. 55-68.
- Baird, S., Chirwa, E., McIntosh, C. & Ozler, B. (2015) *The effects of receiving cash transfers as adolescents on future outcomes* paper presented at the World Bank AFR Seminar Series, April 30, 2015.
- Baird, S., Ferreira, F. H. G., Özler, B. & Woolcock, M. (2013) Relative effectiveness of conditional and unconditional cash transfers for schooling outcomes in developing countries: A systematic review.
- Baird, S., McIntosh, C. & Özler, B. (2011) Cash or condition? Evidence from a cash transfer experiment. *The Quarterly Journal of Economics*, 126(4), pp. 1709-1753.
- Baird, S. J., Garfein, R. S., McIntosh, C. T. & Ozler, B. (2012) Effect of a cash transfer programme for schooling on prevalence of hiv and herpes simplex type 2 in malawi: A cluster randomised trial. *Lancet*, 379(9823), pp. 1320-9.

- Barham, T., Macours, K. & Maluccio, J. A. (2013) *More schooling and more learning?: Effects of a three-year conditional cash transfer program in nicaragua after 10 years.*
- Bärnighausen, T., Hosegood, V., Timaeus, I. M. & Newell, M.-L. (2007) The socioeconomic determinants of hiv incidence: Evidence from a longitudinal, population-based study in rural south africa. *AIDS (London, England)*, 21(Suppl 7), pp. S29-S38.
- Bassani, D. G., Arora, P., Wazny, K., Gaffey, M. F., Lenters, L. & Bhutta, Z. A. (2013) Financial incentives and coverage of child health interventions: A systematic review and meta-analysis. *BMC Public Health*, 13 Suppl 3(pp. S30.
- Behrman, J. A. (2015) The effect of increased primary schooling on adult women's hiv status in malawi and uganda: Universal primary education as a natural experiment. *Soc Sci Med*, 127(pp. 108-15.
- Benderly, B. (2011) A bargain or a burden? How conditional cash transfer (cct) program design affects the women who participate in them, World Bank.
- Blattman, C., Fiala, N. & Martinez, S. (2013) *The economic and social returns to cash transfers: Evidence from a ugandan aid program.*
- Brent, R. J. (2009) A cost-benefit analysis of female primary education as a means of reducing hiv/aids in tanzania. *Applied Economics*, 41(14), pp. 1731-1743.
- Cluver, L., Boyes, M., Orkin, M., Pantelic, M., Molwena, T. & Sherr, L. (2013) Child-focused state cash transfers and adolescent risk of hiv infection in south africa: A propensity-score-matched case-control study. *Lancet Glob Health*, 1(6), pp. e362-70.
- Cluver, L., Orkin, M., Boyes, M. & Sherr, L. (2014) Cash, care and hiv-risk for adolescents in south africa *34th meeting of the UNAIDS Programme Coordinating Board*. Geneva, Swizerland, UNAIDS.
- De Neve, J.-W., Fink, G., Subramanian, S. V., Moyo, S. & Bor, J. Length of secondary schooling and risk of hiv infection in botswana: Evidence from a natural experiment. *The Lancet Global Health*.
- De Walque, D., Dow, W. H., Nathan, R., Abdul, R., Abilahi, F., Gong, E., Isdahl, Z., Jamison, J., Jullu, B., Krishnan, S., Majura, A., Miguel, E., Moncada, J., Mtenga, S., Mwanyangala, M. A., Packel, L., Schachter, J., Shirima, K. & Medlin, C. A. (2012) Incentivising safe sex: A randomised trial of conditional cash transfers for hiv and sexually transmitted infection prevention in rural tanzania. *BMJ Open*, 2(pp. e000747.
- De Walque, D., Dow, W. H., Nathan, R. & Medlin, C. (2013) Evaluating conditional cash transfers to prevent hiv and other sexually transmitted infections (stis) in tanzania *Transfer Project Workshop*. Chaminuka, Zambia.
- De Walque, D., Nakiyingi-Miir, J. S., Busingye, J. & Whitworth, J. A. (2005) Changing association between schooling levels and hiv-1 infection over 11 years in a rural population cohort in south-west uganda. *Trop Med Int Health*, 10(10), pp. 993-1001.
- Department for International Development (Dfid) (2011) *Cash transfers literature review.*

- Doyle, A. M., Mavedzenge, S. N., Plummer, M. L. & Ross, D. A. (2012) The sexual behaviour of adolescents in sub-saharan africa: Patterns and trends from national surveys. *Trop Med Int Health*, 17(7), pp. 796-807.
- Evans, D., Hausladen, S., Kosec, K. & Reese, N. (2014) *Community-based conditional cash transfers in tanzania: Results from a randomized trial*, The World Bank.
- Fiszbein, A. S., Norbert; Ferreira, Francisco H.G.; Grosh, Margaret; Keleher, Niall; Olinto, Pedro; Skoufias, Emmanuel (2009) *Conditional cash transfers : Reducing present and future poverty*. Washington, DC, World Bank.
- Fortson, J. G. (2008) The gradient in sub-saharan africa: Socioeconomic status and hiv/aids. *Demography*, 45(2), pp. 303-322.
- Fylkesnes, K., Musonda, R. M., Sichone, M., Ndhlovu, Z., Tembo, F. & Monze, M. (2001) Declining hiv prevalence and risk behaviours in zambia: Evidence from surveillance and population-based surveys. *AIDS*, 15(7), pp. 907-16.
- Garcia, M. & Moore, C. M. T. (2012) *The cash dividend : The rise of cash transfer programs in sub-saharan africa*, World Bank.
- Gertler, P. (2000) *The impact of progres on health*
- Gertler, P. & Boyce, S. P. (2001) *An experiment in incentive-based welfare: The impact of progres on health in mexico*
- Glassman, A., Duran, D., Fleisher, L., Singer, D., Sturke, R., Angeles, G., Charles, J., Emrey, B., Gleason, J., Mwebsa, W., Saldana, K., Yarrow, K. & Koblinsky, M. (2013) Impact of conditional cash transfers on maternal and newborn health. *J Health Popul Nutr*, 31(4 Suppl 2), pp. 48-66.
- Government of Mexico (2015) *Background information*.
- Handa, S., Halpern, C. T., Pettifor, A. & Thirumurthy, H. (2014) The government of kenya's cash transfer program reduces the risk of sexual debut among young people age 15-25. *PLoS One*, 9(1), pp. e85473.
- Hargreaves, J. & Boler, T. (2006) *Girl power: The impact of girls' education on hiv and sexual behaviour*. Johannesburg, South Africa.
- Hargreaves, J. R., Bonell, C. P., Boler, T., Boccia, D., Birdthistle, I., Fletcher, A., Pronyk, P. M. & Glynn, J. R. (2008a) Systematic review exploring time trends in the association between educational attainment and risk of hiv infection in sub-saharan africa. *AIDS*, 22(3), pp. 403-14.
- Hargreaves, J. R. & Glynn, J. R. (2002) Educational attainment and hiv-1 infection in developing countries: A systematic review. *Trop Med Int Health*, 7(6), pp. 489-98.
- Hargreaves, J. R., Morison, L. A., Kim, J. C., Bonell, C. P., Porter, J. D., Watts, C., Busza, J., Phetla, G. & Pronyk, P. M. (2008b) The association between school attendance, hiv infection and sexual behaviour among young people in rural south africa. *J Epidemiol Community Health*, 62(2), pp. 113-9.
- Hoddinott, J., Maluccio, J. A., Behrman, J. R., Flores, R. & Martorell, R. (2008) Effect of a nutrition intervention during early childhood on economic productivity in guatemalan adults. *The Lancet*, 371(9610), pp. 411-416.
- Ifpri (International Food Policy Research Institute) (2003) *Prpf/ibd project phase ii: Intermediary impact*. Washington, DC.

- Jayaraman, R. & Simroth, D. (2015) The impact of school lunches on primary school enrollment: Evidence from india's midday meal scheme. *The Scandinavian Journal of Economics*, pp. n/a-n/a.
- Karim, Q. A., Leask, K., Kharsany, A., Humphries, H., Ntombela, Samsunder, N., Baxter, C., Frohlich, J., Elst, L. V. D. & Karim, S. A. (2015) Mpaact of conditional cash incentives on hsv-2 and hiv prevention in rural south african high school students: Results of the caprisa 007 cluster randomized controlled trial *8th IAS Conference on HIV Pathogenesis Treatment and Prevention*. Vancouver, Canada.
- Kazianga, H., Walque, D. D. & Alderman, H. (2009) *Educational and health impacts of two school feeding schemes: Evidence from a randomized trial in rural burkina faso*, The World Bank.
- Lagarde, M., Haines, A. & Palmer, N. (2009) The impact of conditional cash transfers on health outcomes and use of health services in low and middle income countries. *Cochrane Database Syst Rev*, 4), pp. CD008137.
- Macpherson, E. E., Sadalaki, J., Njoloma, M., Nyongopa, V., Nkhwazi, L., Mwapasa, V., Lalloo, D. G., Desmond, N., Seeley, J. & Theobald, S. (2012) Transactional sex and hiv: Understanding the gendered structural drivers of hiv in fishing communities in southern malawi. *J Int AIDS Soc*, 15 Suppl 1(pp. 1-9.
- Magadi, M. & Desta, M. (2011) A multilevel analysis of the determinants and cross-national variations of hiv seropositivity in sub-saharan africa evidence from the dhs. *Health & Place*, 17(5), pp. 1067-1083.
- Maluccio, J. A. & Flores, R. (2005) *Impact evaluation of a conditional cash transfer program*
- Mbonye, M., Nalukenge, W., Nakamanya, S., Nalusiba, B., King, R., Vandepitte, J. & Seeley, J. (2012) Gender inequity in the lives of women involved in sex work in kampala, uganda. *J Int AIDS Soc*, 15 Suppl 1(pp. 1-9.
- Morris, S. S., Flores, R., Olinto, P. & Medina, J. M. (2004) Monetary incentives in primary health care and effects on use and coverage of preventive health care interventions in rural honduras: Cluster randomised trial. *Lancet*, 364(9450), pp. 2030-7.
- Nyqvist, M. B., Corno, L., De Walque, D. B. C. M. & Svensson, J. (2015) *Using lotteries to incentivize safer sexual behavior : Evidence from a randomized controlled trial on hiv prevention*. Washington, D.C, World Bank.
- Padian, N. S., Mccoy, S. I., Karim, S. A., Hasen, N., Kim, J., Bartos, M., Katabira, E., Bertozzi, S., Schwartländer, B. & Cohen, M. S. (2011) Hiv prevention transformed: The new prevention research agenda. *Lancet*, 378(9787), pp. 269-278.
- Padian, N. S., Mcloy, S. I., Balkus, J. E. & Wasserheit, J. N. (2010) Weighing the gold in the gold standard: Challenges in hiv prevention research. *AIDS (London, England)*, 24(5), pp. 621-635.
- Pettifor, A., Macphail, C., Nguyen, N. & Rosenberg, M. (2012) Can money prevent the spread of hiv? A review of cash payments for hiv prevention. *AIDS and Behavior*, 16(7), pp. 1729-1738.
- Pettifor, A. E., Levandowski, B. A., Macphail, C., Padian, N. S., Cohen, M. S. & Rees, H. V. (2008) Keep them in school: The importance of education as a protective

- factor against hiv infection among young south african women. *International Journal of Epidemiology*, 37(6), pp. 1266-1273.
- Ranganathan, M. & Lagarde, M. (2012) Promoting healthy behaviours and improving health outcomes in low and middle income countries: A review of the impact of conditional cash transfer programmes. *Prev Med*, 55 Suppl(pp. S95-S105.
- Rosenberg, M., Pettifor, A., Thirumurthy, H., Halpern, C. T. & Handa, S. (2014) The impact of a national poverty reduction program on the characteristics of sex partners among kenyan adolescents. *AIDS Behav*, 18(2), pp. 311-6.
- Saavedra, J. E. & Garcia, S. (2012) *Impacts of conditional cash transfer programs on educational outcomes in developing countries: A meta-analysis*. Santa Monica, CA.
- World Bank (2002) *Education and hiv/aids a window of hope*. Washington, D.C.
- World Bank (2015) *The state of social safety nets 2015*, World Bank Publications.