



Randomized Controlled Trial of a Conditional Cash Transfer Program to prevent mother-to-child transmission of HIV and increase facility delivery in Nigeria

Midline Report
June 2016

A project by New Incentives, evaluation by the University of California, San Francisco

Funded by the Bill & Melinda Gates Foundation

EXECUTIVE SUMMARY

One in three cases of mother-to-child HIV transmission worldwide occur in Nigeria.¹ Drugs, such as Nevirapine, can successfully lower the infection risk from 30% to 5% if given immediately at birth.² Left untreated, 50% of HIV-infected children die before age two.

Although Nevirapine is readily given to all HIV-exposed infants at health facilities, demand for delivering at facilities is low. Clinic fees, transport costs, and traditional beliefs lead women to deliver babies at home, at church, or with untrained traditional birth attendants.³

To increase utilization of prevention of mother-to-child transmission (PMTCT) services, New Incentives has implemented a **conditional cash transfer (CCT)** program for HIV-positive pregnant women. Enrolled women are eligible to receive up to 32,000 Naira (~US\$110) if they enroll in antenatal care, deliver at a facility, and test the newborn for HIV. Since 2014, the **All Babies are Equal (ABAE)** CCT program has encouraged over 3,400 women to deliver their babies safely in facilities.

Funded by the Bill & Melinda Gates Foundation, researchers at the University of California, San Francisco and Reed College are conducting a randomized trial to evaluate the effectiveness of the ABAE CCT program at three public facilities in Akwa Ibom State, Nigeria. Since May 2015, over 500 HIV-positive pregnant women have been recruited and randomly assigned to be offered the ABAE CCT program or to receive standard PMTCT care without cash incentives.

Conditional cash transfers are helping to ensure that babies born to HIV-positive mothers do not become infected.

Midline results from the evaluation show that the cash incentives are increasing the number of HIV-exposed newborns who receive diagnosis and treatment to prevent mother-to-child transmission.

In the intention-to-treat analysis, among women who had given birth or have passed their estimated due date, **women offered the CCT program were significantly more likely to give birth at a facility (48%)**

compared to women in standard care (27%)—a statistically significant increase of 21 percentage points (OR=2.57, p=0.000) (Figure 1). When excluding women who declined to enroll in the CCT program when offered, the difference was even larger (27 percentage point difference, OR=3.28, p=000).

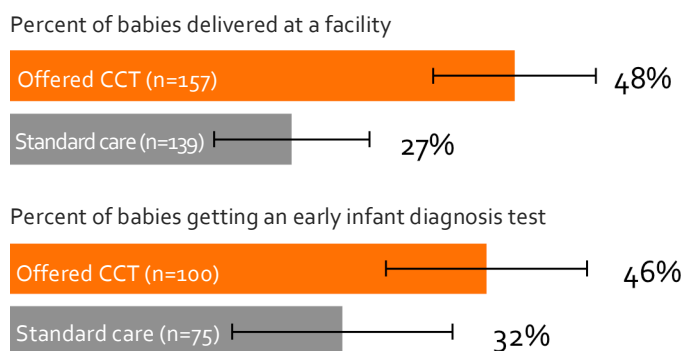
Babies born to mothers offered the CCT program were also more likely to get an early infant diagnosis test 8-10 weeks after birth (46%) compared to those born to mothers with standard PMTCT care (32%).

In addition to encouraging retention in care and treatment, survey responses from program beneficiaries indicate that the cash transfers are enabling families to afford important baby care supplies, buy infant food and nutritional products, and invest in independent businesses.

Study women and newborns will be tracked through 10 weeks post-birth to assess retention in care, self-reported care and treatment behaviors, and use of cash incentives. Final study results will be available in April 2017, at which time all primary and secondary outcomes will be fully powered.

The study's interim results are among the first to show that conditional cash transfers can increase utilization of PMTCT services.

Figure 1. Effects of the conditional cash transfer program at midline



Background

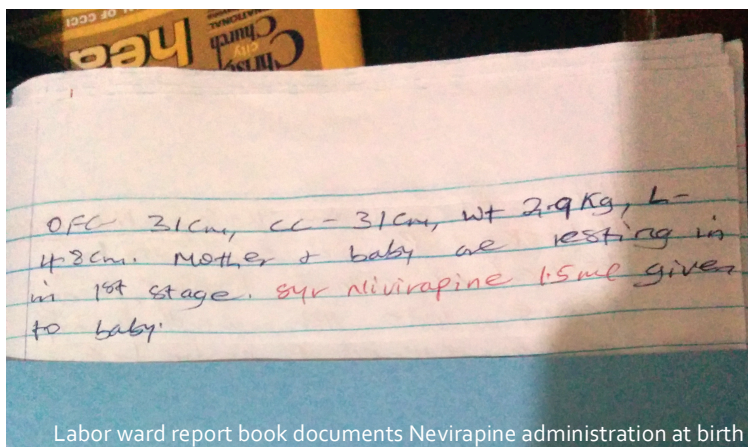
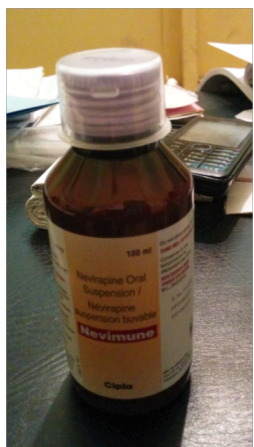
Infant mortality is unacceptably high in Nigeria, where, for every 1,000 who are born, more than 100 die before reaching their first birthday.⁴ HIV continues to be one of the main causes of mortality and morbidity, and children in Nigeria are disproportionately affected—1 in 3 children with HIV are born in Nigeria, infected primarily through exposure during pregnancy and birth.¹

HIV transmission from mother to child is preventable, but PMTCT services are severely underutilized.

The Government of Nigeria has implemented PMTCT programs in over 5,700 facilities nationwide.⁵ However, service uptake is poor, leaving many babies at high risk of infection. Of the 190,000 pregnant women living with HIV in 2013, only 27% received antiretroviral treatment to prevent the transmission of HIV to their child.¹

Pregnant women are lost at each step along the PMTCT cascade, from the first antenatal visit and HIV test, to continued antenatal care, delivery at a facility to ensure Nevirapine administration, and early infant diagnosis (EID) testing.

Barriers to PMTCT service uptake include the costs of transportation to the clinic, fear of HIV



Labor ward report book documents Nevirapine administration at birth

disclosure, challenges in negotiating with partners, and difficulties interacting with clinic staff.⁶ In addition, fees for hospital services (e.g., labor ward, registration, medications, and lab tests), even at government-run centers, can deter women from seeking care.

Our Solution

Interventions using cash incentives have proven effective for a variety of behaviors, including male circumcision, adherence to anti-retroviral therapy, retrieval of HIV test results, and making better choices in partners and sexual activity.^{7,8}

Cash incentives not only enable beneficiaries to overcome short- and long-term financial barriers

(e.g., transportation, food insecurity), but also can counter social stigma preventing HIV-positive women from seeking services (insofar as the public reason for the visit can be to obtain funds).⁹

Conditional cash transfers can reduce barriers to maternal and newborn health service utilization.

Because cash incentives address multiple demand-side barriers, they are an especially promising tool for increasing PMTCT service utilization. The ABAE program gives incentives throughout the PMTCT treatment cascade, ultimately aiming to help women establish a continuum of care and change care-seeking norms to ensure that future babies are born HIV-free.

How does the ABAE conditional cash transfer program work?

Implemented by New Incentives, the ABAE program aims to increase retention of HIV-positive pregnant women in PMTCT. **Women enrolled in the ABAE program can receive up to three cash transfers during their pregnancy to 10 weeks after birth.**

1. 6,000 Naira (~US\$20) to encourage antenatal care registration, foster trust, and provide cash for future antenatal visits.
2. 20,000 Naira (~US\$70) when the participant gives birth in health facility, where her newborn receives Nevirapine.
3. 6,000 Naira (~US\$20) when the newborn receives an early infant diagnosis (only eligible to women who delivered at the facility).

Cash is disbursed via digital money tokens. Beneficiaries receive secured codes by text message, redeemable at an ATM or bank without the need to register or show identification.

New Incentives' fully electronic data system monitors women at every step and includes security checks to prevent fraud. **Biometric face recognition ensures that each beneficiary only participates once in the program.**



Cash amounts were determined based on feedback from local stakeholders and patient-reported out-of-pocket medical expenses.

1. HIV test / registration

6,000 Naira

2. Delivery at clinic

20,000 Naira

3. HIV test of newborn

6,000 Naira

Supply-Side Considerations

New Incentives conducts an assessment of each clinic before establishing a CCT program to ensure that HIV services can be delivered with quality. At each candidate facility, a standardized electronic data capture system to evaluate critical infrastructure features is used to assess adequate staffing, 24/7 operating hours, availability of supplies (e.g., HIV test kits, antiretroviral drugs), and knowledge among nurses about delivery procedures. Once a New Incentives program is implemented in a facility, service quality assessment is ongoing.

New Incentives staff visit clinics on a weekly basis and immediately report problems. New Incentives works closely with international NGOs which support facility-based HIV programs to assure supplies and regularly train clinic staff.

To ensure that clinics can effectively service increased volumes of women, New Incentives actively manages the number of women enrolled in the CCT program.

Study Design

We conducted a randomized controlled trial at three public, secondary-level facilities in Akwa Ibom State, Nigeria. These facilities were purposively selected to represent different clientele populations, from relatively poorer and more rural to more well-off and urban.

From August 2015 to June 2016, pregnant women registering for antenatal care and testing positive for HIV were randomized to one of two study arms:

1. Offered the chance to enroll in the ABAE CCT program (i.e., treatment group)
2. Continue in the standard PMTCT course of care (i.e., control group)

Data on women’s age, delivery outcomes, and infant testing were extracted from administrative clinic records. Self-reported spending and health behaviors for women participating in the ABAE CCT program were obtained from program records. Regression analysis was conducted to estimate the intention-to-treat (ITT) effects of the program.

Sample characteristics

Table 1 displays the characteristics of women randomized to be offered the ABAE CCT program and who agreed to enroll. About three-fourths of women had at least one previous child and only 37% had delivered their last child at a facility. No differences in the ages or the month of pregnancy when registering for antenatal care were detected between women in each arm.

Table 1. Characteristics of women in the treatment group

Characteristic	N	Median or %
Age ¹	179	27
Month of pregnancy at enrollment ¹	189	6
Marital status	179	
Married	151	84%
Single	24	13%
Widowed	4	2%
Number of children currently alive	179	
0	48	27%
1	60	34%
2	37	21%
3+	34	19%
Place of delivery for last child born	179	
Public hospital/clinic	63	35%
Church	41	23%
Traditional birth attendant	24	13%
Home	13	7%
Private hospital/clinic	3	2%
N/A (no previous births)	35	20%
Diagnosed with HIV at enrollment	179	
Yes	65	36%
No	114	64%

¹Hospital records only report age and month of pregnancy when women are first enrolled in antenatal care. Kruskal-wallis tests show no difference in the distribution of ages and month of pregnancy between women randomized to the control and treatment arms.

Preliminary results

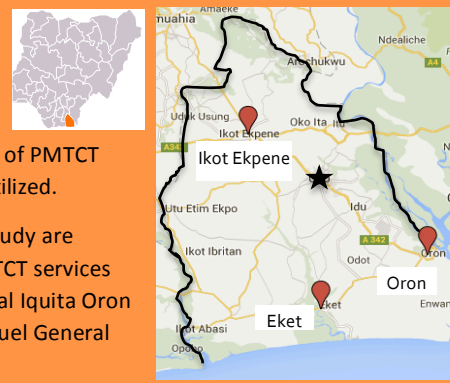
Overall program impact

Among women who had given birth or have passed their estimated due date, women offered the CCT program were significantly more likely to give birth at a facility (48%) compared to women in standard PMTCT care (27%)

Our Study Sites

Located in the Niger Delta, Akwa Ibom State has one of the highest HIV prevalence rates in Nigeria.¹⁰ As a PMTCT priority state, hundreds of PMTCT sites have been activated, but remain underutilized.

All three health facilities participating in the study are general hospitals offering comprehensive PMTCT services and emergency obstetric care. General Hospital Iquita Oron is located in the most rural area, while Immanuel General Hospital Eket serves more urban clients.



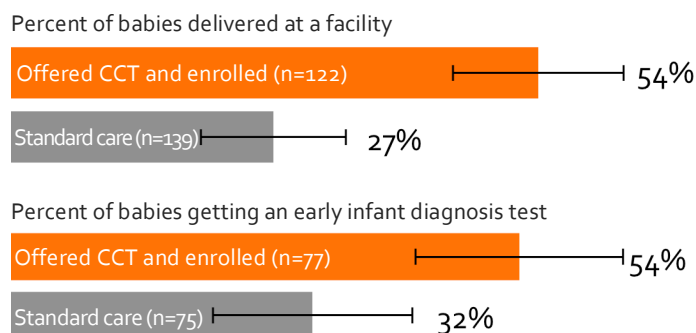
(Figure 1). This represents a statistically significant 21 percentage point difference (OR=2.57, p=0.000). Clinic records indicate that all babies delivered at the hospital received Nevirapine.

For women with newborns due for an early infant diagnosis test, those offered the CCT program were also more likely to have the baby tested (46%) than those in standard PMTCT care (32%). The eligible sample size is currently too small to detect a statistically significant difference for this outcome, but it will be sufficiently powered by the end of the study.

When excluding women who declined to enroll when offered the CCT program (22%, n=35), the effects increase further (OR=3.28, p=000), nearly doubling the percentage of babies delivered at a facility (Figure 2).

Anecdotal evidence suggests refusals are largely due to reasons related to participating in the study procedures (e.g., being randomized) rather than the CCT program. As such, facility deliveries among women who refused were similar to those in the control group receiving standard PMTCT care.

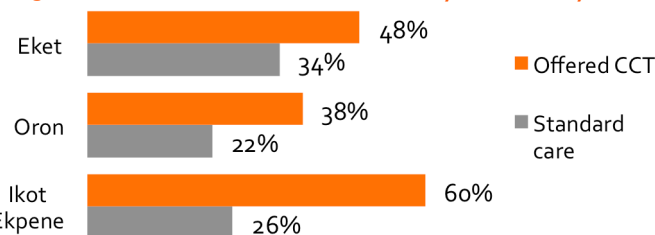
Figure 2. Effects of the conditional cash transfer program at midline for women enrolled in the program



Differences by study sites

Across study sites, the largest increases in facility deliveries are observed at Ikot Ekpene (ITT=34 percentage point difference; Figure 3). Statistical tests for effect differences across sites will be adequately powered by study end.

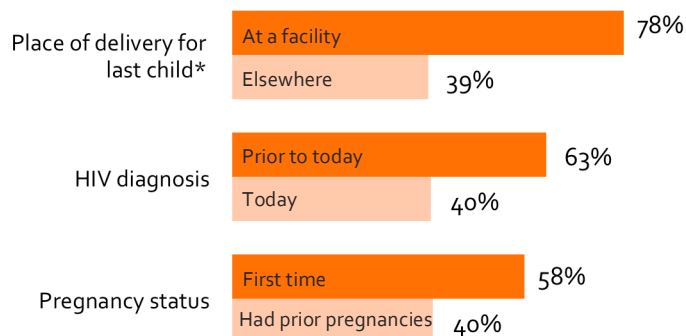
Figure 3. Percent of babies delivered at a facility across study sites



Larger impacts for some subgroups

Among women offered the CCT program, different subgroups of beneficiaries were more likely to deliver at a facility (Figure 4), including those who had previously been diagnosed with HIV (63%) compared to those who were newly diagnosed (40%). Recruitment officers indicate that previously diagnosed women are often more receptive to the program and understood that receiving the right medical treatment is important to reducing infection risk for their newborns. In contrast, newly diagnosed women sometimes denied their HIV status, which prevented them from wanting to be associated with the program.

Figure 4. Percent of facility-based deliveries among women offered the CCT program



*Restricted to mothers who have previously given birth

In addition, higher percentages of facility-based deliveries were observed for new mothers (58%) than those who have already had children (40%), and for women who delivered their last child at a facility (78%) than those delivering their last child elsewhere (39%). **These findings suggest that the CCT program could change social norms toward delivering at facilities over the longer-term.** In fact, 36% of mothers delivering their child at the facility had gone to a church, home, or a traditional birth attendant to deliver their previous child (data not shown). Given that these mothers have switched their place of delivery to a facility, they may be more likely to again deliver at a facility in the future.

Spending cash transfers

Program records show that PMTCT-related costs can vary substantially. Fees include paying for registration cards, lab tests, nurses, maternity kits, and use of the labor ward. Median self-reported out-of-pocket medical expenses for all PMTCT services (~13,000 Naira) were less than the total cash transfer amount. Reported spending indicates that, in addition to clinic fees, nearly all women purchased supplies for newborn care and nutrition.

Discussion

Midline results suggest that CCTs can improve retention in PMTCT in Akwa Ibom, Nigeria. Women offered the CCTs are more likely to deliver their babies at a facility where they immediately receive Nevirapine after birth and obtain an early infant HIV test. Across study sites, impacts ranged from 14 to 34 percentage points. Among those offered the CCT program, larger effects are observed for women who are having their first child and among women who knew their HIV status prior to the pregnancy.

The substantial increases in PMTCT retention observed for the ABAE program also suggest that the expanded New Incentives CCT programs offered to all high-risk pregnant women may also effectively encourage

facility-based, safe deliveries, ultimately lowering neonatal mortality within the general population.

Ongoing study activities will aim to assess preferences for different cash amounts, reasons for non-compliance and refusals, differential impacts for subgroups, external generalizability, and self-reported care and treatment behaviors. Data collection procedures are continually being improved to ensure that service utilization milestones recorded in clinic registers can be validated. Full study results are anticipated in April 2017.

Acknowledgements

The study was made possible by a grant from the Bill and Melinda Gates Foundation. The trial is registered at ClinicalTrials.gov (NCT02447159).



New Incentives is a US-based nonprofit committed to implementing health-related cash transfer programs to save lives in developing countries. Operating in Nigeria, New Incentives gives HIV-positive women conditional cash transfers for preventing mother-to-child HIV transmission. In 2015, the program expanded to incentivize facility-based deliveries among all women with at-risk pregnancies in efforts to reduce neonatal mortality.

This study is led by researchers from the University of California, San Francisco. Nancy Padian, PhD, is a Professor of Epidemiology and world-renowned expert on HIV prevention and care, particularly within the broader context of economic development, empowerment, and gender-based violence. Jenny Liu, PhD, is an Assistant Professor of Health Economics specializing in designing and evaluating innovative health interventions in sub-Saharan Africa. They are supported by Nicholas Wilson, PhD, Associate Professor of Economics at Reed College and Fellow at the White House Social and Behavioral Sciences Team, and Veesta Falahati, MS, Doctor of Medicine candidate at the University of California, Davis.

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