“Linkages to Care: Home Visiting in Urban Townships” Outcome and Impact Evaluation of the Future Families program

Final Evaluation Report

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List of Acronyms

AIDS	Acquired Immune Deficiency Syndrome
CAPI	Computer-Assisted Personal Interviewing
CBO	Community Based Organization
CSG	Child Support Grant
ECD	Early Childhood Development
FF	Future Families
HCT	HIV Counselling and Testing
HIV	Human Immunodeficiency Virus
NGO	Nongovernmental Organization
OAG	Old Age Grant
OVC	Orphans and Vulnerable Children
PEPFAR	U.S. President‘s Emergency Plan for AIDS Relief
RCT	Randomized Control Trial
RSA	Republic of South Africa
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNICEF	United Nations Children’s Fund
USAID	United States Agency for International Development

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Executive Summary

Introduction

Evaluation purpose. The purpose of this study was to evaluate the impact of Future Families services, with an emphasis on their care worker home visiting program provided to families with orphans and vulnerable children (OVC) in Tshwane (aka Pretoria) townships, South Africa. Future Families, a non-profit organization operating in South Africa, takes a family-based approach to addressing the needs of OVC through paraprofessional home visiting services delivered by mobilized and trained care workers. The study encompasses a quasi-experimental component designed to provide rapid feedback related to program implementation, and a randomized controlled trial (RCT) offering rigorous evidence of program impact. Findings are expected to strengthen the evidence base for effective family centered programming to address the needs of vulnerable children and their caregivers.

Evaluation questions. What is the impact of the Future Families' home visiting program provided to families with orphans on child, guardian and household wellbeing indicators? These indicators are :

- HIV testing uptake among caregivers and children
- School attendance among school-aged children
- Caregiver psychosocial wellbeing
- Early childhood development
- Access to social services

Methodology

Study design: Using a quasi-experimental design, this programme evaluation compared outcomes of the recipients of the Future Families programme during its scale up phase, who were previously enrolled and received the intervention, with outcomes of newly enrolled recipients before the receipt of the intervention. The characteristics of recipients from both arms were matched using the demographic, health and socioeconomic status of the guardian. All households who had been previously enrolled for approximately 18 months and those who were newly enrolled but had not yet received any services were invited to participate in the study. Alongside, a waiting-list randomized controlled trial was conducted to evaluate the effectiveness of this programme. Beneficiaries who were new to the program at the time of enrollment in the study were randomly assigned to receive the program's full complement of services either immediately or approximately 15 months after the baseline survey.

Intervention description: Under the supervision of a qualified social worker, care workers with a secondary education and recruited from the local community received ongoing training from Future Families. These care workers provided monthly home visits to vulnerable families (including households with orphans, chronically ill adults, HIV/AIDS-affected family members and/or extreme poverty) in Tshwane townships, South Africa. Care workers provide households with information, psychosocial support, and access to external services.

Data collection methods: Future Families expanded their staff and other program resources to accommodate planned program expansion, necessitating the use of staggered service delivery to new enrollees. This situation provided a natural opportunity to adopt an experimental design, the strongest kind of research evidence, while ultimately offering full program services to all enrollees. Beneficiaries who were new to the program at the time of enrollment in the study were randomly assigned to receive the program's full complement of services either immediately or approximately 12 months after the baseline survey. Alongside this randomized controlled trial (RCT), data was also collected at baseline from current long-term beneficiaries to facilitate an immediate quasi-experimental post-test assessment.

Study participants were recruited through the Future Families' community based organization (CBO) through trained care workers from the local communities. Data was collected from adult caregivers ("guardians") defined as the adult in the home who had primary responsibility for the care of residing children. The survey included age-appropriate wellbeing indicators for each child in the home, and characteristics and outcome indicators for the guardian and the household. Primary caregivers completed their survey through a face-to face interview with a trained interviewer in English or Sepedi. The interviewer used computer-assisted personal interviewing (CAPI) technology to read and record responses. IRB approval for this study was obtained from the Tulane University Institutional Review Board in the United States and the University of Limpopo Medunsa Campus Ethics Committee in Pretoria. Standard procedures for informed consent, confidentiality, quality assurance and participant referral were followed.

Of the total 822 households enrolled in the Future Families home visiting program, 763 guardians completed baseline surveys (93% response rate) in June-August 2014: including 282 guardians who had been previously enrolled in the Future Families program (89% response rate) and 481 newly enrolled guardians (95% response rate) who had not yet received any services. The quasi-experimental study used propensity score matching to compare 231 (82%) previously enrolled households to 231 (48%) newly enrolled households for an analytical dataset of 462 households. In the RCT, caregivers newly enrolled into the FF program during the months of May-June 2014 were randomly assigned to participate in the program beginning in September 2014 or waitlisted for participation to occur after the follow-up survey, about one year later. The assignment to groups was accomplished using computer software designed for random allocation of subjects to groups, and interviewers were blind to individuals' group assignments. Follow up data collection occurred in November 2015 after one year of service delivery. While 481 guardians participated at baseline, 431 caregivers completed the follow-up survey (providing information on 1123 children) yielding a 90% participant retention at follow-up.

Data Analysis: In the quasi-experimental study, propensity scored matched data was used to compare caregiver and child outcomes between program-participating and non-participating households. Multivariate logistic regression models were estimated using PROC SURVEYLOGISTIC in the SAS statistical software to adjust the standard errors for clustering of children by household. The predictor of primary interest was previous program participation, using an intent-to-treat design. The logistic regression models included basic demographics that may influence outcomes and all categorical variables were entered into the model as mutually exclusive dichotomous dummies. In the RCT study, differences between the treatment groups by sample characteristics were assessed at baseline using chi-square tests for categorical variables and t-tests for continuous variables in SAS version 9.3. Logistic mixed effects models tested group differences for evaluation outcomes using the MELOGIT command in Stata 14 and an intent-to-treat group assignment. All models included control variables for caregiver's gender and the child's age at baseline.

Findings

The summaries of key findings from both study components are presented separately below.

Key findings from the quasi-experimental analysis:

- *Caregiver HIV Testing:* The percentage of caregivers who had ever been tested for HIV was significantly higher in households previously enrolled in the FF home visiting program than newly enrolled households (78% vs. 69%, Chi-square = 4.46, *p*= 0.035). There was no significant difference in HIV testing in the previous year between the two groups (46% vs. 42%, Chi-square = 0.71, *p*=0.40).
- *Child HIV testing:* Previously enrolled households had a significantly higher percentage of their children tested for HIV compared to newly enrolled families (44% vs. 30%, Chi square =29.56, *p*=0.0001). Receiving FF services increased the odds of a child being tested by 97% (OR= 1.97, 95% CI = 1.34–2.92) compared to children from similar households that had not yet received services. In addition, the difference in testing was more pronounced for orphans, with 49% of orphans from previously enrolled households tested compared to 24% among children from newly enrolled households. Orphans living in program-participating households had double the odds of being tested compared to non-orphans living in similar non-participating households (OR = 2.12, 95% CI = 1.00–4.47).
- *School Attendance:* School age children from program-participating households attended school more regularly compared to children from newly enrolled households (59% vs. 52%, Chi-square=4.20, p=0.04). In addition, a significantly higher percentage of adolescents aged 15 and older from program-receiving households (63%) attended school more regularly as compared to teenagers from newly enrolled households (50%) (Chi-square=5.81, *p*=0.02).
- *Caregiver Psychosocial Wellbeing:* The difference in percentages of basic support available to caregivers in program-participating and non-participating households was statistically insignificant (66% vs. 63%, Chi-square=0.34, *p*=0.56). In addition, no significant difference in caregivers' experiences of negative feelings was found between two groups of households (47% vs. 52%, Chi-square=1.05, *p*=0.31).
- *Early Childhood Development:* The percentage of children aged 1-5 years with Road to Health clinic cards observed by the interviewer and indicating full age-appropriate immunization was significantly higher in newly enrolled households (37%) as compared to program-receiving households (24%) (Chi-square=7.43, *p*=0.01). There was no significant difference between groups regarding engagement in stimulating activities (77% vs. 83%, Chi-square=1.69, *p*=0.19).

- *Access to Social Services:* Among households eligible to receive the Child Support Grant (CSG), there was no significant difference in family's access to the grant as an equal numbers of caregivers (approx. 80%) in both enrollment groups reported receiving the CSG (Chi-square=0.07, *p*=0.79). The percentage of eligible households receiving Old Age Grants (OAG) was 11% higher in previously enrolled households, but this difference was not statistically significant (93% vs. 84%, Chi-square= 1.91, *p*=0.17).

Key findings from the randomized controlled trial:

- *Caregiver HIV Testing:* Caregivers enrolled in the home visiting program were three times more likely to have been tested for HIV in the preceding year than caregivers in the wait group (OR = 3.3; *p* = 0.001). This program effect was particularly prominent among intervention caregivers younger than 35 years, as they were ten times more likely to have been tested in the previous year than their wait-listed counterparts (OR = 10.3, *p* = 0.01). No significant differences were found among lifetime testing rates between groups.
- *Child HIV testing:* No significant program effect was found for lifetime rates of HIV testing among children. Child HIV testing in the previous year was only assessed at follow up and showed that a significantly higher percentage of children enrolled in the program were recently tested than wait-listed children (OR = 1.37; *p* = 0.02). However, due to the lack of longitudinal data on child HIV testing, this effect cannot be attributed to the program. Children whose caregivers (1) participated in the home visiting program and (2) had been tested in the previous year, were almost five times more likely to have been tested at follow-up than other children (OR=4.7, 95% CI=1.2-18.3).
- *School Attendance:* Positive trends were observed in regular school attendance among all school-age children in both intervention and wait groups, yet no significant program effect was found for this outcome. However, children aged 15 and older in the intervention group were 6 times more likely to attend school regularly than those in the wait list group (OR = 6.5, *p* = 0.015).
- *Caregiver Psychosocial Wellbeing:* There was no significant difference between intervention and wait group caregivers in overall basic support received or overall negative feelings scores. However, there was a significant program effect on the frequency of negative feelings. That is, the frequency of negative feelings experienced by caregivers dropped by 21% in the intervention group, and 10% in the wait group (OR=0.05; *p*=0.038).
- *Early Childhood Development:* No program effect was found for immunization rates or stimulating activities for children under the age of 5.
- *Access to Social Services:* While there were positive trends observed in the percentage of children with verified identity documentation in both intervention and wait groups, no significant program effects was found for this indicator. There was no significant program effect found for the uptake in child and old age support grants among intervention households.

Limitations

Study findings must be considered within the context of the evaluation study design, which has several important limitations. The quasi-experimental study establishes a strong correlation between program participation and outcome measures but cannot assign causality as with a truly experimental design. In addition, while propensity score matching is very effective in creating similar comparison groups, it does not necessarily address potential participation bias associated with needier households enlisting in the program earlier. Thus, the households in the intervention group may differ from those enrolled later with regard to factors not included in the analysis that could potentially affect outcomes. Further, the questionnaire asked only if the child had ever been tested for HIV and not if the child had been tested since enrollment in the Future Families home visiting program. If child testing is associated with early enrollment in the Future Families home visits, the program effect may be inflated.

For both the quasi-experimental and RCT, social desirability bias may also affect reports of HIV testing in the intervention group, given the program's emphasis on education and prevention. The lack of universally accepted outcome measures that capture the range of services provided by home visiting organizations such as Future Families is another key limiting factor in program evaluations. While the study used measures with a history of testing and successful application in similar populations and contexts, alternative measures may have produced different results, especially for the outcomes pertaining to early childhood development and access to social services.

Conclusions and Recommendations

The evaluation study presented in this report was designed to assess the effectiveness of Future Families' holistic, family-based approach to addressing the needs of OVC through paraprofessional home visiting in urban township communities in Tshwane, South Africa. In so doing, the study contributes to strengthening the evidence base for effective family-centered programming by demonstrating that providing vulnerable families with one-on-one support and education from trained care workers has the potential to increase HIV testing uptake, improve caregivers' psychosocial wellbeing, and increase school attendance among vulnerable youth. The following list of recommendations has been drawn from the evaluation results; rationale and further details for each recommendation is provided in the body of this report:

Recommendation 1: Improve efforts to better reach the most vulnerable populations, including HIV positive caregivers & their children in order to bolster HCT promotion**.**

Recommendation 2: Explore ways to improve school attendance among enrolled children and adolescents, such as raising awareness about the importance of attending school every day from an early age or non-monetary incentives to recognize children with regular attendance.

Recommendation 3: Strengthen efforts to improve caregiver psychosocial health through structured, time-limited interventions and enhanced targeted care worker support to those living with HIV.

Recommendation 4: The training course for the FF care workers should include methods and content on how to address HIV stigma in the community to avoid further stigmatization or discrimination of program enrollees.

Recommendation 5: Establish referral procedures that are sensitive to the research context by working with the implementing partner and ensuring trained, sensitive interviewers.

Recommendation 6: Maintain regular communication with local stakeholders about evaluation processes and results in order to address impediments to program success and to ensure the local relevance and the broader utilization of findings.

Recommendation 7: Adhere to a culturally sensitive research approach, by ensuring cultural and linguistic competence in the development of consent/assent language and procedures.

Recommendation 8: To help tailor programming, future research should focus on identifying the aspects of home visiting intervention models that are most influential for HCT and other services uptake in different contexts. Future studies may help to identify the key attributes of home visiting that can most effectively link at risk and vulnerable families to HIV testing, grant access and other social services.

Project Background

With an estimated 5.6 million people living with HIV in South Africa, the AIDS epidemic has led to a large number of orphaned or otherwise vulnerable children (OVC) and families. Of South Africa's 18 million children, nearly 21% have lost one or both parents (UNAIDS, 2012); and with an HIV rate of 28% among pregnant women, many more likely reside with HIV positive parents (Department of Health, 2010). Both psychosocial challenges and economic hardship are disproportionately common in homes where an orphan or HIV-infected adult resides (Deininger, Garcia, & Subbarao, 2003). Children affected by AIDS have an increased likelihood of psychological challenges, sexual risk behavior, and poorer school attendance (UNICEF, 2003). Effective responses to addressing the needs of OVC must include efforts to strengthen the capacity of families that care for them (Schenk, Michaelis, Sapiano, Brown, & Weiss, 2010). OVC caregivers may suffer emotional distress, have limited social support and experience family discord. Research reports a heightened risk of mental health problems among OVC caregivers, including grandparents and HIV positive parents (Ice, Yogo, Heh, & Juma, 2009). Addressing the needs of OVC caregivers is integral to a comprehensive, family-based approach. OVC programming principles therefore emphasize the importance of interventions that endeavor to enhance the psychosocial well-being and caregiving capacity of OVC guardians (UNICEF, 2003).

The purpose of this study was to evaluate the impact of the Future Families care worker home visiting program offered to vulnerable families through trained and mobilized care workers. Supported by the President of the United States' Emergency Plan for AIDS Relief (PEPFAR) through USAID Southern Africa, Future Families is a South African non-governmental organization providing a range of services to vulnerable children and their families, affected and infected by HIV/AIDS. Future Families was established in 2010 and now works in six townships located within the greater Tshwane area (also known as Pretoria) of South Africa. Specifically, they operate in Sunnyside, Eersterus, Mamelodi (Central), Mamelodi East, Nellmapius/Mamelodi South and Olievenhoutbosch. As of early 2016, Future Families was providing community care services to the families of over 8,900 children in the Greater Tshwane Area (Future Families, 2016). However, at the time of evaluation planning, Future Families was just expanding into the Nellmapius/Mamelodi South community and intended to enroll as many as 800 new families during an estimated three-month period from May-July 2014 in addition to those already enrolled in the Mamelodi Central and Mamelodi East townships.

To implement their services, Future Families trains and mobilizes care workers from the local community to provide monthly home visits to vulnerable families. Minimum qualifications require that care workers completed secondary education and are recruited from the community. They work under the supervision of a licensed social worker and receive ongoing training from Future Families. Additionally, they receive enhanced support related to HCT, including an HIV prevention training module with refresher trainings, targeted encouragement from supervisory staff, and community resource information designed specifically to promote testing uptake. During the initial home visits, a customized action plan is developed to meet the needs of each family, including material support, counseling, and referral for a variety of health and social services.

Evaluation Purpose and Questions

Purpose

The evaluation of Future Families consisted of two components with distinct purposes:

(1) a quasi-experimental study that aimed to provide an immediate **outcome evaluation** to inform programming and;
(2) A one-year randomized controlled trial study designed to provide an **impact evaluation** of the home visiting program.

Evaluation Questions

Both studies were designed to provide a range of child, guardian and household wellbeing indicators that have been endorsed by the United States Agency for International Development (USAID) as important and expected outcomes of OVC programs:

- HIV testing uptake among caregivers and children
- School attendance among school-aged children
- Caregiver psychosocial wellbeing
- Early childhood development
- Access to social services

The quasi-experimental study investigated to what extent outcomes differed between newly enrolled beneficiaries and established beneficiaries, while the RCT investigated to what extent changes in these indicators among the intervention group were attributable to the Future Families program.

Evaluation Design and Methodology

Study setting and population

The study was conducted in three contiguous peri-urban townships of the city of Pretoria/Tshwane, Mamelodi, Mamelodi East and Nellmapius, located in the Gauteng Province of South Africa. Future Families program services targeted households containing children who have lost one or both parents, chronically ill adults, and/or households in extreme poverty. Prior to the study in May – June 2014, potential beneficiaries were visited in their homes by a care worker who collected detailed information about the family for program (not study) eligibility determination. All households who had been previously enrolled in Future Families programs for approximately 18 months (receiving an average of 11 home visits over that time based on Future Families monitoring data), and those who were newly enrolled but had not yet received any services were invited to participate in the study. All interested caregivers were selected/recruited based on the following participant inclusion criteria:

- Aged 18 or over at the time of study enrollment;

- Enrolled in a selected Future Families site;
- Willing and able to consent to study participation

Beneficiaries of Future Families services who were not able to give informed consent due to known or recognizable cognitive or psychiatric impairment were excluded from the participant recruitment stage.

Stakeholder engagement

Engagement of local stakeholders, including implementing organizations and program partners, was critical to defining the scope of the evaluation and designing survey methods that are contextually appropriate and responsive to the needs of the funders, program partners and participants. While it was important that the evaluation team operated independently from implementers and other local key stakeholders, it was essential to have open communication about roles, the purpose of the evaluation and its protocol and potential benefits. As a result, from the outset of the study, the evaluation team maintained frequent communication with the local stakeholders ensuring a well-developed and informed understanding of the program and its strengths and limitations among all stakeholders involved. For example, implementation partners were invited to assist with identifying key expected outcomes to ensure that the evaluations study accurately captured the program efforts. In addition, Tulane conducted an in-depth workshop with FF staff in 2014 (see 'Dissemination' section in this report) to explain the study, gather feedback and answer questions. Based on input from stakeholders, new indicators were added to the evaluation instruments to more fully reflect the program priority outcomes. Engaging the program implementers from the outset of the evaluation project helped ensure that program staff were well-informed prior to the evaluation beginning.

Continued engagement of local stakeholders was maintained throughout the research process to ensure local relevance and the broader utilization of evaluation findings. For example, the results of the quasi-experimental analysis were shared with the FF to inform program implementation over the following year. Baseline results were used by partners to prioritize focal areas for optimal program impact, including HIV testing of children, immunizations, promotion of early childhood development program enrolment and school attendance, and birth certificate uptake and verification. Post-evaluation workshops and other forums were organized to help implementing partners and other local stakeholders understand and use study results (see 'Dissemination' section in this report).

Quasi-experimental post-test study: sampling and analysis strategy

The quasi-experimental study was designed to indicate potential program effects by comparing the data from families' already receiving Future Families services (i.e. established enrollees or beneficiaries) with the data from families newly enrolled but not yet receiving home visits.

Data was collected from current long-term beneficiaries already enrolled in Future Families home visiting program for approximately 18 months and those who were newly enrolled but had not yet received any services. Prior to the data collection, potential beneficiaries were visited in their homes by a care worker who collected detailed information about the family for eligibility determination. Households containing the most vulnerable children were prioritized for program enrollment. Of the total 822 households enrolled in the Future Families home visiting program, 763 guardians from 763 households (93% response rate) completed baseline surveys: including 282 guardians who had been previously enrolled in the Future Families program (89% response rate) and 481 newly enrolled guardians (95% response rate) who had not yet received any services.

While the program eligibility criteria were the same for both groups, previously enrolled households were generally more disadvantaged than newly enrolled households. Propensity score matching was thus used to identify a subset of newly enrolled households most similar to those previously enrolled to create a quasi-experimental design. Propensity scores were calculated in SAS 9.3 software for each household using logistic regression predicting previous program participation. Matching was conducted using Coca-Perraillon's (2007) greedy match macro without replacement and a caliper of 0.01. This resulted in 231 (82%) previously enrolled households matched to 231 (48%) newly enrolled households for an analytical dataset containing 462 households. Within the 462 households included in the analysis, there were 1324 children: 644 in the intervention households and 680 in control households.

Impact evaluation sampling and analysis strategy (Randomized controlled trial)

The RCT was designed to assess the impact of Future Families home visiting services on beneficiaries over a one year period. RCT data was collected in two rounds with the same beneficiaries over a one year period. Beneficiaries who were new to the program at the time of enrollment in the study were randomly assigned to receive the program's full complement of services either immediately or approximately 15 months after the baseline survey. School-aged children in both groups of newly-enrolled beneficiaries were offered homework assistance classes at a Future Families facility, to ensure that even the control group received some benefit from enrollment from the start. The assignment to groups was accomplished using RANUNI function in the SAS statistical software designed for random allocation of subjects. Baseline data from these participants were collected within four weeks of their enrollment and prior to program commencement between July – August 2014. Follow-up surveys were completed in November of 2015 after one year of service delivery to the intervention group, but prior to commencement of service delivery to the wait-listed control group.

A total of 484 newly enrolled caregivers were recruited to participate in the study with one refusal. At baseline, the 483 participating caregivers provided data on 1,245 children under the age of 18. At follow-up, 431 caregivers completed surveys (216 intervention subjects and 215 control subjects) with one refusal and 51 who had either relocated or were unavailable after three visits for a loss to follow-up of 10.8%. Among those caregivers completing follow-up surveys, 22 were not the same as the caregiver who completed the baseline survey, but cared for the same children. Evaluation findings in this report pertain to the final sample of 431 households.

Differences between the treatment groups by sample characteristics were assessed at baseline using chi-square tests for categorical variables and t-tests for continuous variables in SAS version 9.3. Logistic mixed effects models tested group differences for HIV testing using the MELOGIT command in Stata 14 using intent-to-treat group assignment. All models included control variables for the age at baseline and gender of the caregiver. Terms for the three townships were tested but eliminated because they were non-significant and did not improve model fit.

Table 1. Rounds of data collection and analysis

Study	Participant Recruitment	Data Collection	Data Analysis
Quasi-experimental	May – June 2014	Surveys completed in July 2014	Analysis of data collected in 2014 included: • Assessment of the baseline data of newly enrolled beneficiaries to assess their current situation with respect to outcomes of interest; • Comparison of outcomes between the new and longstanding beneficiaries to discern potential program effects.
Randomized Controlled Trial	May – June 2014	Baseline (Round 1): surveys completed in July – August 2014 Follow-up (Round 2): surveys completed in November 2015	Analysis of follow-up data collected in 2015, included: • Change over a one year period in the sample enrolled in 2014, and comparisons between outcomes by study group (based on the timing of service delivery); • Potential risk and protective factors predictive of outcomes of interest.

Data collection methodology

Survey data were collected from adult primary caregivers (“guardians”) of children residing in the household after obtaining informed consent in face-to-face interviews using computer-assisted personal interviewing (CAPI) technology to read and record responses. Participants were interviewed at home in English or Sepedi by a trained interviewer not affiliated with Future Families and blind to study allocation. All study instruments were translated into Sepedi and verified by three professional translators. The survey asked guardians to report on age-appropriate wellbeing indicators for each child in the home, including age, gender and the child’s HIV testing history. Caregiver demographic information, HIV testing and status, and health indicators were also collected. IRB approval for this study was obtained from the Tulane University Institutional Review Board in the United States and the University of Limpopo Medunsa Campus Ethics Committee in Pretoria. Standard procedures for informed consent, confidentiality, quality assurance and participant referral were followed and are discussed in more detail in ‘Ethical considerations and assurances’ section.

Key outcome measures

The surveys used in this study incorporated a range of child, caregiver and household well-being indicators that have been recommended by the United States Agency for International Development as important and expected outcomes of OVC programs (PEPFAR, 2012). The survey asked participants to report on age-appropriate wellbeing indicators for each child in the home, and collected characteristics and outcome indicators for the guardian and the household. A set of primary outcomes reported in this article includes HIV testing, school attendance, caregiver's psychosocial well-being, early childhood development, and access to social services.

- ***HIV Testing*** was assessed by asking caregivers if they and the children in their household had ever been tested for HIV and when they received their most recent test results. Caregivers were also asked if they were tested for HIV in the last year. Response options were "Yes", "No", and "Don't know".
- ***School Attendance*** was measured by asking caregivers if the school-aged child (children) under their care were absent from school in preceding week (i.e. "During the last full school week, did [child's name] miss any days (not including holidays)?"). Response options were "Yes", "No", and "Don't know".
- ***Caregiver Psychosocial Wellbeing*** was measured by asking caregivers to indicate the basic social and emotional support available to them (e.g. "Do you have someone in your life to turn to for suggestions about how to deal with a personal problem?" or "Do you have someone in your life to help with daily chores if you were sick?"), with response options being "Yes" and "No". In addition, participants were asked about the frequency of experiencing negative feelings ("How often do you have negative feelings such as sad mood, despair, or depression?", with response options ranging from "Never" (0) to "Always" (4).
- ***Early Childhood Development*** was assessed by measuring two components: child immunization and engagement in any stimulating activities. To measure immunization, caregivers were firstly asked if the child (children) in their care had a health clinic or Road to Health Card (unverified/reported card). Caregivers were then asked to produce the health care card as evidence (verified card). While the possession of a health care card was not an outcome itself, the immunization status of children was only recorded for those children (aged 5 years and younger) whose caregivers could produce a card (i.e. interviewers recorded the immunizations listed on the card by using response options "Yes" and "No"). In addition, caregivers were asked to indicate if the child (or children) in their care recently engaged in any stimulating activities (e.g., read books or looked at picture books, listened to stories, sang songs, played games, etc.) with any household member over 15 years of age. Response categories were "Yes" and "No".
- ***Access to Social Services*** was measured by asking caregivers to indicate if the child (or children) under their care had birth certificates or identity documentation, as well as a series of questions to determine if they were eligible for and receiving a Child Support Grant or a Foster Care Grant. The survey also asked whether anyone in the household was in receipt or had applied for an Old Age Grant. Response categories to all these questions were "Yes" and "No".

Data analysis

As presented in Table 1 above, the data analysis plan included a preliminary analysis of baseline data and more advanced analysis to establish the difference between the previously and newly enrolled households (a quasi-experimental component) as well as the intervention and waitlist groups (a RCT component). Descriptive analyses included frequencies of categorical outcomes, and means and/or medians of continuous outcomes to depict the characteristics of the OVC, caregivers, and households in the study. These basic analyses also illustrated areas of met and unmet need to guide Future Families programmatic efforts.

In the quasi-experimental study, propensity scored matched data was used to compare caregiver and child outcomes between program-participating and non-participating households. Multivariate logistic regression models were estimated using PROC SURVEYLOGISTIC in the SAS statistical software to adjust the standard errors for clustering of children by household. The predictor of primary interest was previous program participation, using an intent-to-treat design. The logistic regression models included basic demographics that may influence testing and all categorical variables were entered into the model as mutually exclusive dichotomous dummies. In the RCT study, differences between the treatment groups by sample characteristics were assessed at baseline using chi-square tests for categorical variables and t-tests for continuous variables in SAS version 9.3. Logistic mixed effects models tested group differences for evaluation outcomes using the MELOGIT command in Stata 14 using intent-to-treat group assignment. All models included control variables for caregiver's gender and the child's age at baseline. Terms for the three townships were tested in both evaluation components but eliminated because they were non-significant and did not improve model fit. In all analyses, significance probability values of .05 or less on the variables 'program' (for the post-test) and 'time' (for the pre and post) were used to capture program effects.

Ethical considerations and assurances

The study team was acutely aware of the importance of ethical standards and a number of best practice procedures were in place to ensure the rights and protection of participants. Prior to the commencement of data collection activities in June 2014, the full research protocol and survey instruments were approved by the Tulane University Institutional Review Board in the United States and the University of Limpopo Medunsa Campus Ethics Committee in Pretoria (ethical approvals obtained in June 2014). Ethical guidelines for this study were developed according to the South African Department of Health Ethical Guidelines (Department of Health, 2004, 2006), Human Science Research Council's guidelines on research with orphans and vulnerable children (HSRC, 2010) and other reputable resources for the ethical conduct of research with adolescents (Petersen & Leffert, 1995; Schenk & Williamson, 2005). The randomized control trial was registered with ClinicalTrials.gov [NCT02395328].

The following procedures were strictly adhered to in order to ensure ethical implementation of the study:

Informed consent: Written informed consent was obtained from all adult participants prior to beginning the interview from field workers trained in strict ethical procedures. Adult respondents were asked to provide consent to participate in the survey when they were first approached at their home residence by fieldworkers. In the RCT study, written informed consent was obtained from all adult participants prior to both baseline and follow-up interviews to ensure continued voluntary and informed participation.

Voluntary participation: As part of the consent and assent procedures, the interviewer explained clearly before the questioning began that the respondent's participation is entirely voluntary and that the respondent has the right to refuse to answer any question or any part of any question that he or she did not wish to respond to. In addition, all potential participants were reminded that they had the right to terminate the interview at any time. Finally, they were made aware at the outset that their decision to participate or not in the study did not affect their eligibility to receive services from the programs then or in the future.

Privacy and confidentiality: All data collection rounds were completed by interviewers from a research team not affiliated with Future Families. Interviewers visited families in their home and conducted interviews in private and without the presence of program affiliates in caregiver's local language using the structured survey instrument described above. Prior to interviews, participants were asked to select a private room, area in the yard, or other space where s/he was comfortable, free of observers, and could not be overheard. All participants were informed of provisions to ensure confidentiality, namely that that their answers would be held in strict confidence and stored in the different place as their contact information.

Protection of data: All beneficiary data files that provide the information linking individuals to their unique identifiers were password-protected and kept in locked cabinets accesible only to the Tulane Univerity senior researchers. Similarly, the data for tracking sheets, which included contact and identifying information, was captured on a different database than the actual survey data. This data is also password protected with access limited to lead research team members.

Deviations and adjustments

No major deviations from or adjustments to the protocol occurred. There were, however, several additions to the research instruments for the RCT study that were incorporated into the previously approved baseline questionnaire to make it suitable for follow up interview purposes. More specifically, changes to the caregiver survey included the addition of questions regarding exposure to and experiences with the intervention under study (care worker visiting program), as well as questions regarding services the respondent may have received from community organizations or programs. Other newly included questions asked about caregiver's ability to pay for unexpected household expenses; caregiver's attitude towards corporal punishment in the home or at school; whether the caregiver has identified someone to care for the children if something should happen to him/her; whether the caregiver was forced to relocate due to activities known to have occurred in the community in the past year; and whether children who have ever been tested for HIV have had a test in the past 12 months. Further, the updated survey ascertained whether a new caregiver wass caring for the children enumerated at baseline and the circumstances of such. It also determined which of the baseline children were still under care and whether there were any new children who have moved into the home since baseline. Finally, one survey item was deleted that explored receipt of material assistance and accessing referrals. These changes received IRB approval prior to follow up data collection.

Procedures to ensure high quality data

Several procedures were followed throughout the evaluation process to ensure high quality data:

Survey Preparation: All survey instruments were translated in Sepedi through use of a local professional translation company. Two different translators independently translated the instruments, and a third translator then compared and rectified the translations to ensure accuracy. Translated surveys were reviewed by local program staff for clarity and pilot tested among a small sample of previously enrolled participants.

Survey Modality: Primary caregivers completed their survey through a face-to face interview with a trained interviewer. The interviewer used computer-assisted personal interviewing (CAPI) technology to read and record responses. All questions and responses were simultaneously displayed on the screen and the respondent's answers were recorded by the interviewer on the touch screen. The data were automatically stored in the database and encrypted, thereby eliminating the need for double capture of surveys and other time-consuming data entry error control processes. It was also programmed to allow for system checks and to do auto-skips for the various applicable questions.

Tracking Form: Procedures to reduce loss to follow-up were also be in place. After completion of the baseline survey, primary caregivers were asked to complete a Household Tracking Sheet (see Appendix C) which solicited information such as caregiver surnames, contact numbers, GPS coordinates of the household location, and other identifying information. This information was collected to facilitate follow-up data collection. Respondents consented to this portion separately and were reassured that contact information would not to be stored with their questionnaires. Future Families program registers also served as a secondary source for tracking participants, as they contained contact information for all beneficiaries and Future Families staff assisted with keeping the registers up-to-date.

Training and Field Procedures: All fieldwork staff was culturally and linguistically representative of the targeted respondents and received a thorough 7-day training pertaining to the questionnaires and ethical conduct. Throughout the data collection process, the research team engaged in a range of quality control measures that met national and international social research standards. In addition to comprehensive training of field staff, these included weekly fieldwork review meetings and dedicated quality control teams that checked every paper and electronic questionnaire handed in from the field.

Findings and Limitations

The following sections present findings separately for the key outcomes of the quasi-experimental and RCT studies. The presentation of the findings of the surveys will be articulated on two levels: the caregiver (HIV testing, psychological wellbeing, access to social services) and the child (HIV testing, school attendance, early childhood development).

Key findings and limitations of the quasi-experimental study

The purpose of the quasi-experimental study was to compare a sample of previously enrolled caregivers to a sample of newly enrolled caregivers in a post-test propensity score matched analysis that aimed to provide immediate information to inform program implementation. While the program eligibility criteria were the same for both groups, previously enrolled households were generally more disadvantaged than newly enrolled households. For example, previously enrolled households tended to have guardians with less education, more adults with a chronic illness (self-reported sickness for three months of the past year), be food insecure, have fewer assets and contain more orphans (see Thurman et al., 2016 for a more detailed discussion of the quasi-experimental study). Propensity score matching was thus used to identify a subset of newly enrolled households that could act as a similar comparison group for the established beneficiaries. Propensity score matching resulted in 231 (82%) previously enrolled households matched to 231 (48%) newly enrolled households for a final analytic sample of 462 households.

Table 2 below lists the breakdown of the sample of caregivers by gender and group and the breakdown of the sample of children by gender, group and age. Of the total caregiver sample (n=462), the vast majority were female (89.83%). Of the total child sample (n=1,324 children), 680 (51.36%) were from previously enrolled families and 644 (48.64%) were from newly enrolled families. In terms of age, 349 (26.36%) children were under the age of 5, including 178 (51%) in the families already receiving FF services and 171 (49%) in newly enrolled households. The majority of children were of school age (903 or 68.20%), with similar numbers coming from previously enrolled and newly enrolled households (460 or 50.94% and 443 or 49.06%, respectively). Gender distribution was similar across all age and enrollment groups.

Table 2. Sample description from the quasi-experimental component of evaluation

Characteristics	Group	Previous enrollees		New enrollees		Total sample	
		N	%	N	%	N	%
Caregivers	*All*	231	50.00	231	50.00	462	100
	Men	21	9.09	26	11.26	47	10.17
	Women	210	90.91	205	88.74	415	89.83
Children	*All*	680	51.36	644	48.64	1324	100

	Boys	328	48.24	318	49.38	646	48.79
	Girls	352	51.76	326	50.62	678	51.21
Children under 5 years of age	*All*	178	51.00	171	49.00	349	100
	Boys	90	50.56	94	54.97	184	52.72
	Girls	88	49.44	77	45.03	165	47.28
Children 1 to 5 years of age	*All*	195	52.70	175	47.30	370	100
	Boys	101	51.79	91	52.00	192	51.90
	Girls	94	48.21	84	48.00	178	48.10
School age children (6 to 17)	*All*	460	50.94	443	49.06	903	100
	Boys	215	46.74	211	47.63	426	47.18
	Girls	245	53.26	232	52.37	477	52.82

The following sections outline results on the key outcome indicators including visual presentation of percentages for different caregiver and child groups.

Outcome 1: HIV Testing

HIV testing among caregivers was assessed with two indicators: whether they had received an HIV test in the past year and whether they had received an HIV test in their lifetime. As seen in Figure 1, 78% of caregivers from previously enrolled households and 69% from newly enrolled households had ever been tested for HIV. This difference in lifetime HIV testing was found to be statistically significant (Chi-square = 4.46, *p*= 0.035) indicating that the percentage of caregivers who had ever been tested for HIV is significantly higher in the households already enrolled in FF home visiting program. With respect to the second HIV testing indicator – HIV testing in the previous year – there was no statistically significant difference between new and old program enrolees (Chi-square = 0.71, *p*=0.40, see Figure 2).

Figure 1. Caregivers ever tested for HIV

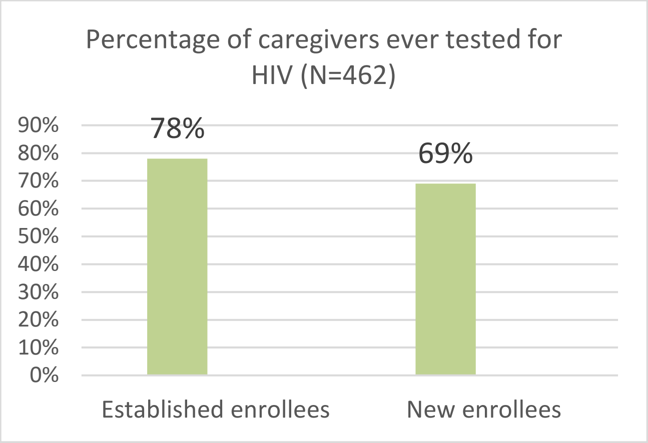
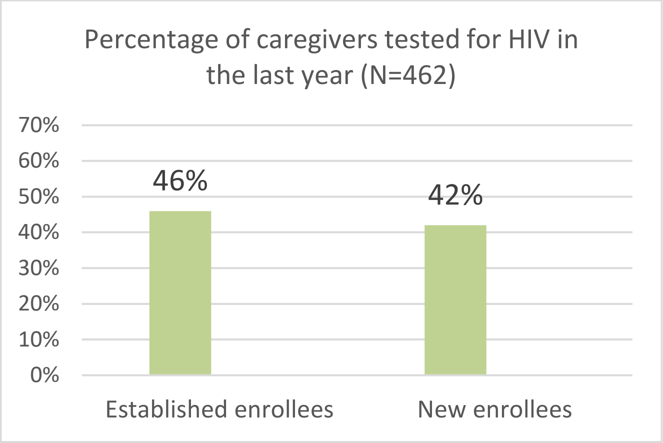
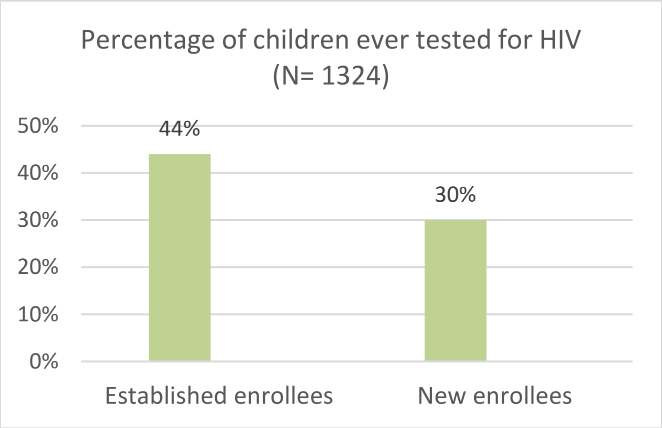


Figure 2. Caregivers tested for HIV in last year



In the sample of 1,324 children, 44% of children from previously enrolled households had been tested for HIV, while 30% of children from newly enrolled households had been tested (Figure 3). There was a statistically significant difference between the two groups – previously enrolled households had a higher percentage of their children tested for HIV compared to newly enrolled families (Chi square =29.56, *p*=0.0001). In addition, the difference in testing was more pronounced for orphans, with 49% of orphans from previously enrolled households tested compared to 24% among children from newly enrolled households.

Figure 3. Children ever tested for HIV



A more in-depth examination of HIV testing among children presented in a recent publication (Thurman, Luckett, Taylor, & Carnay, 2016) found that younger children were more likely to have been ever tested, with the odds of being tested falling by 6% for each additional year of life until age 17 (OR = 0.94, 95% CI = 0.91–0.96). In terms of the impact of household and caregiver characteristics, children with a male guardian had 68% lower odds of being tested than children with a female guardian (OR = 0.32, 95% CI = 0.14–0.72), while having a guardian younger than 25 years of age reduced a child's odds of being tested by 82% (OR = 0.18, 95% CI = 0.04–0.69). Guardians' education and marital status did not predict testing, and children cared for by someone who is not a biological parent had similar odds of being tested as children living with a biological parent. The odds that a child would be tested more than tripled for those whose guardian was a biological parent living with HIV (OR = 3.14, 95% CI = 1.77–5.56). Children living with a guardian who exhibited accurate knowledge of HIV transmission risks had 70% higher odds of being tested (OR = 1.70, 95% CI = 1.13–2.54).

Receiving FF services increased the odds of a child being tested by 97% (OR= 1.97, 95% CI = 1.34–2.92) compared to children from similar households that had not yet received services. When including an interaction term for orphan by program participation, orphans living in program-participating households had double the odds of being tested compared to non-orphans living in similar non-participating households (OR = 2.12, 95% CI = 1.00–4.47). Orphan status alone was not significant (OR = 0.77, 95% CI =0.43–1.39), although the conditional effect for program participation remained significant (OR = 1.69, 95% CI = 1.09–2.62).

Outcome 2: School Attendance

School attendance among the two study groups was assessed by looking at school absenteeism in the preceding week among all school-age children (N=903). As shown in Figure 4, 59% of children aged 6-17 years from previously enrolled households and 52% from newly enrolled households attended school regularly. This difference between the two groups was statistically significant (Chi-square=4.20, p=0.04) indicating that children from previously enrolled households attended school more regularly compared to the children from newly enrolled households.

Figure 4. School attendance in preceding week among all school-age children

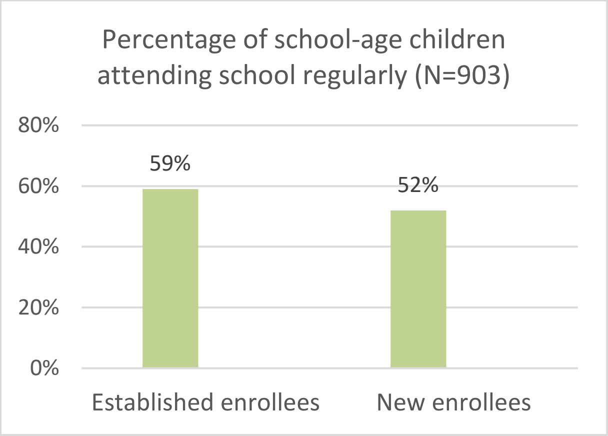
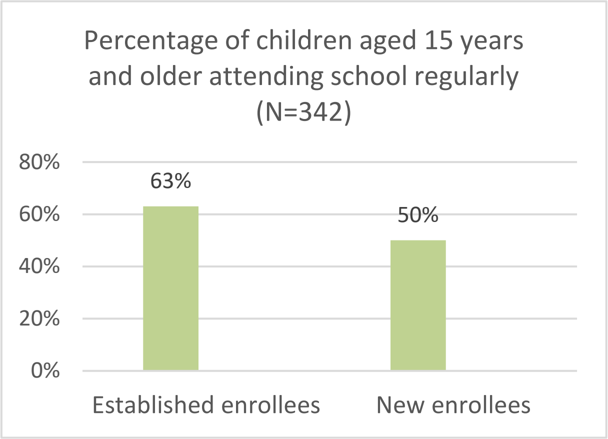


Figure 5. School attendance in preceding week among children 15 years and older



Further examination of school attendance rates among the two groups of enrollees showed no significance in school attendance rates among the children aged 6 to 12 years. However, there was a significant difference in school attendance in previous week among children age of 15 and older. As seen in Figure 5, a significantly higher percentage of teenagers from previously enrolled households (63%) attended school regularly as compared to teenagers from newly enrolled households (50%) (Chi-square=5.81, *p*=0.02).

Outcome 3: Caregiver Psychosocial Wellbeing

Caregiver psychosocial wellbeing among established and new program enrollees was assessed by measuring different types of basic social and emotional support available to caregivers. As shown in Figure 6, 66% of caregivers from previously enrolled households reported receiving basic support in their lives, while a slightly lower percentage of 63% of caregivers from newly enrolled households reported the same. The difference in percentages was statistically insignificant (Chi-square=0.34, *p*=0.56), indicating that a similar amount of basic support was available to newly enrolled and previously enrolled caregivers.

Figure 6. Caregiver Psychosocial Wellbeing: Basic Support

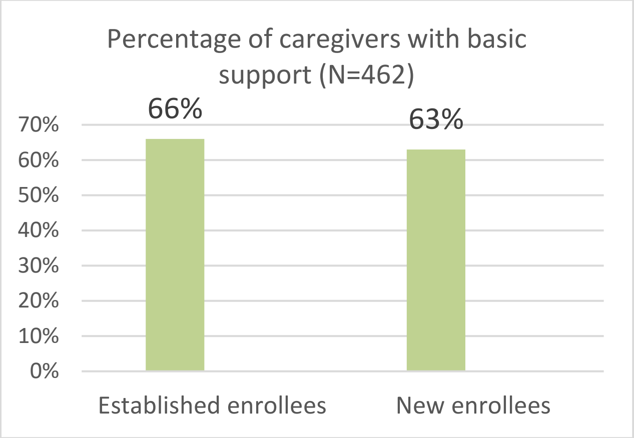
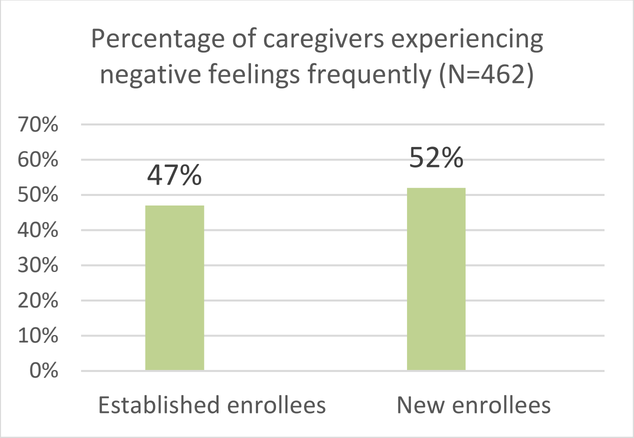


Figure 7. Caregiver Psychosocial Wellbeing: Negative Feelings



Self-reported experiences of negative feelings was the second indicator measuring caregiver's psychosocial wellbeing. As seen in Figure 7, approximately half of the samples of previously enrolled caregivers (47%) and newly enrolled caregivers (52%) reported experiencing negatives feelings frequently. The difference between the two groups of enrollees was statistically insignificant (Chi-square=1.05, *p*=0.31) supporting similar levels of negative feelings found between the two groups of caregivers.

Outcomes 4: Early Childhood Development

Early childhood development outcomes were collected for children ages 1-5 (n=370). Indicators included whether all age-appropriate immunizations had been received among children and whether an adult had engaged in stimulating activities with the child in the past three days. The percentage of children aged 1-5 years with a Road to Health clinic card observed by the interviewer and indicating full age-appropriate immunization was significantly higher in newly enrolled households (Chi-square=7.43, *p*=0.01). As seen in Figure 8, the percentage of fully immunized children was 37% in newly enrolled households and 24% in previously enrolled households.

Figure 8. Early Childhood Development: Immunization

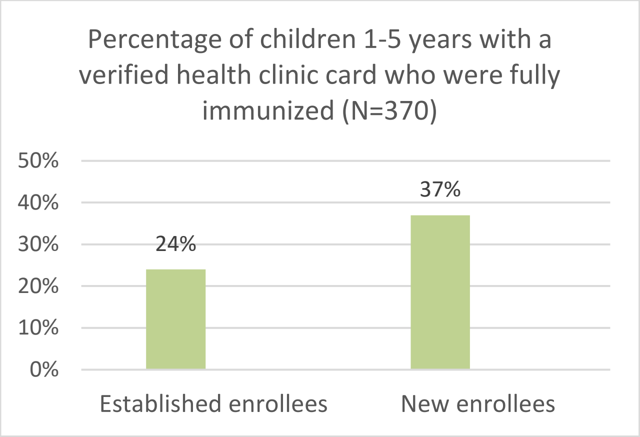


Figure 9. Early Childhood Development: Stimulating activities

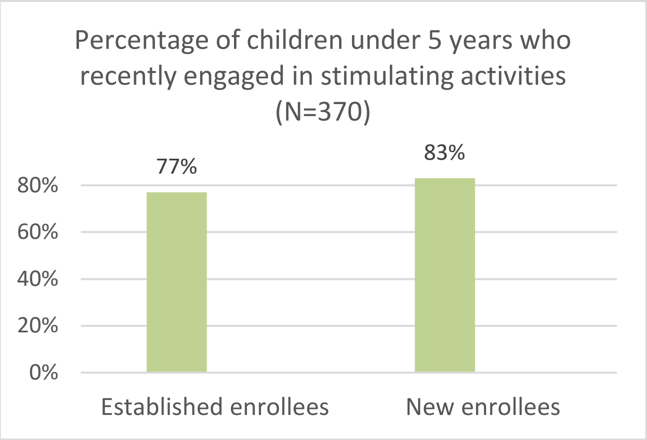


Figure 9 shows caregiver reported percentages of children under five years of age who recently engaged in stimulating activities with other household members (e.g. read books or looked at picture books, listened to stories, sang songs, played games). Similar numbers of children in both enrolment groups were reported to have recently engaged in stimulating activities, the percentages reached 77% of current child enrolees and 83% of children in newly enrolled households. The difference between the two groups was statistically insignificant (Chi-square=1.69, *p*=0.19).

Outcome 5: Access to Social Services

The two groups of enrollees were also compared on two indicators measuring their access to social services, including documents and grants important for social protection. Caregivers were asked to verify whether the child or children in their household had any identity documentation (e.g. birth certificate or ID). Almost identical numbers of caregivers indicated and showed child's identity documents in both enrollment groups (i.e. 77% in previous and 76% in newly enrolled groups). In addition, there was no statistically significant difference in families' access to the Child Support Grant (CSG) among households determined eligible to receive this grant (Chi-square=0.07, *p*=0.79); Equal numbers of caregivers (80%) in both enrollment groups reported being in receipt of a CSG (Figure 10).

Figure 10. Access to Social Services: Child Support Grant by eligibility

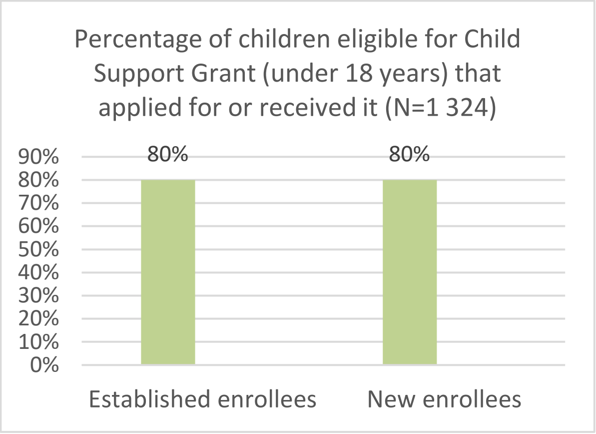
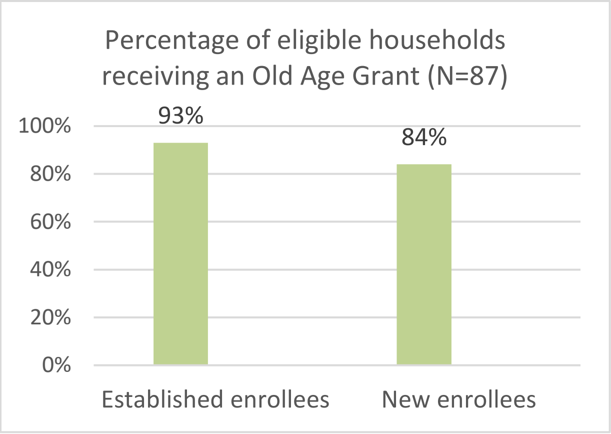


Figure 11. Access to Social Services: Old Age Grant by eligibility



As seen in Figure 11, the percentage of eligible households receiving Old Age Grants was 11% higher in previously enrolled households (93%) as compared to newly enrolled households (84%). However, this difference was not statistically significant (Chi-square= 1.91, *p*=0.17) indicating that both groups of enrollees had similar access to social services.

Limitations of the quasi-experimental design

These findings must be considered within the context of the evaluation study design, which has several important limitations. This quasi-experimental study establishes a strong correlation between program participation and outcome measures, including HIV testing, but cannot assign causality as with a truly experimental design. Furthermore, the questionnaire asked only if the child had ever been tested for HIV and not if the child had been tested since enrollment in the Future Families home visiting program. If child testing is associated with early enrollment in the Future Families home visits, the program effect may be inflated. Social desirability bias may also affect reports of HIV testing in the intervention group, given the program's emphasis on education and prevention. Incorporating follow-up questions about the recency of testing and the factors that prompted it would provide useful additional information for better understanding HCT practices and distinguishing the program's effects.

In general, while propensity score matching is very effective in creating similar comparison groups, it does not necessarily address potential participation bias associated with needier households enlisting in the program earlier. Thus, the households in the intervention group may differ from those enrolled later with regard to factors not included in the analysis that could potentially affect outcomes.

Key findings and limitations of the RCT

A total of 484 newly enrolled caregivers were recruited to participate in the RCT study with one refusal. The 483 participating caregivers provided data on 1245 children under the age of 18 at baseline. At follow-up, 431 caregivers completed surveys (216 intervention subjects and 215 control subjects). One caregiver refused and 51 either relocated or were unavailable after three visits for a loss to follow-up of

10.8%. Loss to follow-up was similar in both arms, with 11.2% in the wait-listed group and 9.6% in the home visit group. In anticipation that some caregivers would pass away or relocate, efforts were made to identify changes in the primary caregiver of study children. Among those caregivers completing follow-up surveys, 22 were not the same as the caregiver who completed the baseline survey, but cared for the same children and thus were interviewed.

Baseline characteristics of the sample by group assignment are presented below in Table 3. Of the total sample of 431 caregivers, 92.11% were female. Caregivers in the study provided information on 1,123 children (556 in intervention group and 567 waitlist group). With regards to age, 349 (26.36%) children were under the age of five (178 or 51% in the families already receiving FF services and 171 or 49% in newly enrolled households). Of the 1,123 children in the study, the majority were of school age (903 or 68.20%), with similar numbers coming from previously enrolled and newly enrolled households (460 or 50.94% and 443 or 49.06%, respectively). Among the baseline sample of children, 15.7% were single orphans, 2.8% were double orphans, 13% were living with a chronic illness, 16.5% lived with a chronically ill caregiver, and 3.6% lived in a child or youth headed household. In the sample of all children, gender distribution was similar across all age and enrollment groups. No significant differences were found between the groups with regards to any of the characteristics presented.

Table 3. Sample baseline characteristics of caregiver and their children by group assignment

Characteristics	Group	Intervention		Wait group		Total sample	
		N	%	N	%	N	%
Caregivers	*All*	216	50.12	215	49.88	431	100
	Men	15	6.94	19	8.84	34	7.89
	Women	201	93.06	196	91.16	397	92.11
Children	*All*	556	49.51	567	50.49	1123	100
	Boys	298	53.60	288	50.79	586	52.18
	Girls	258	46.40	279	49.21	537	47.82
Children under 5 years of age	*All*	166	53.55	144	46.45	310	100
	Boys	104	62.65	73	50.69	177	57.10
	Girls	62	37.35	71	49.31	133	42.90
Children 1 to 5 years of age	*All*	158	50.80	153	49.20	311	100
	Boys	90	56.96	77	50.33	167	53.70
	Girls	68	43.04	76	49.67	144	46.30
School age children (6 to 17)	*All*	365	48.09	394	51.91	759	100
	Boys	184	50.41	199	50.51	383	50.46
	Girls	181	49.59	195	49.49	376	49.54

The following sections outline results for the key outcome indicators including visual presentation of percentages for caregivers and children from the intervention and control groups.

Outcome 1: HIV Testing

HIV testing uptake among caregivers and children was assessed by asking caregivers at both survey rounds if they and children in their care had ever been tested for HIV. Caregivers were also asked if they were tested for HIV in the previous year at both rounds. Figures 12 – 17 present results for HIV testing uptake among study participants. In the caregiver sample, while lifetime rates were not significantly affected by the program enrolment (see Figure 12), recent testing among caregivers was positively impacted by the program (see Figure 13). That is, at follow-up, caregivers enrolled in the home visiting program were three times more likely to have been tested for HIV in the preceding year than caregivers in the wait group (OR = 3.3; *p* = 0.001).

Figure 12. Caregivers ever tested for HIV

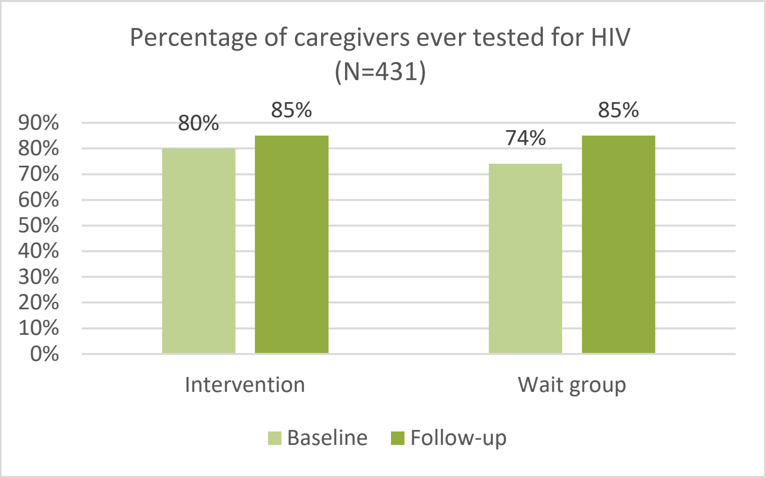
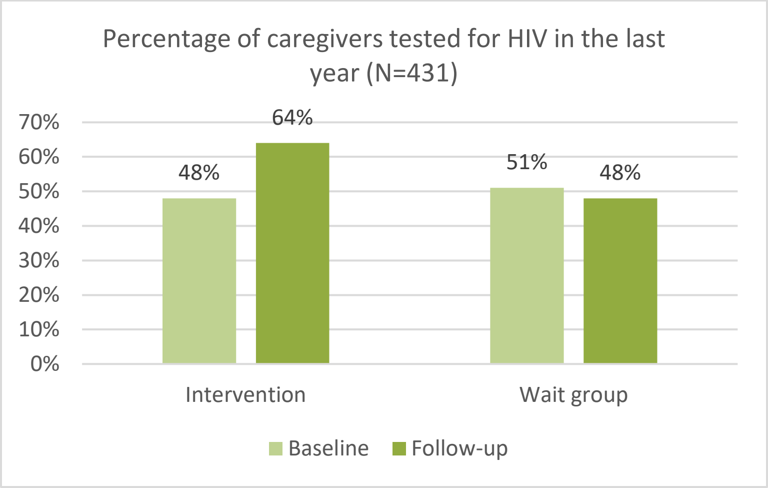
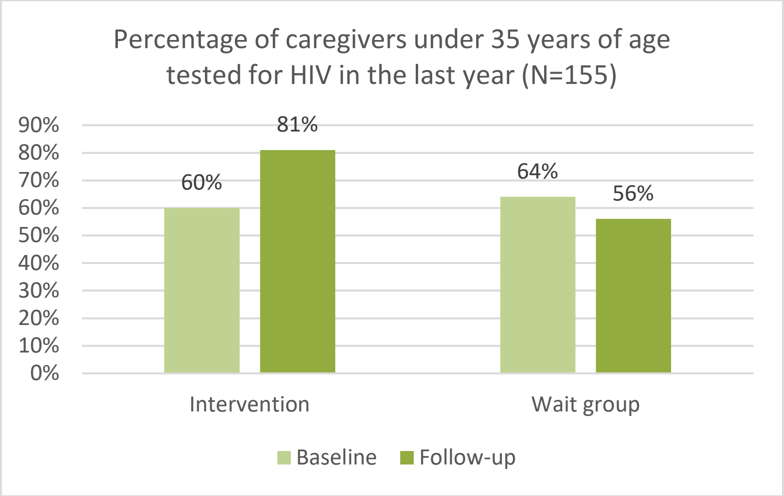


Figure 13. Caregivers tested for HIV in last year



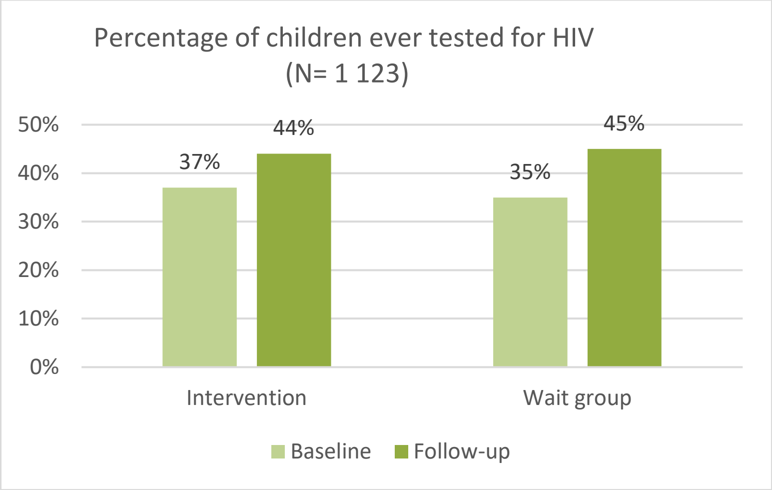
In addition, the program effect was particularly prominent among the intervention group caregivers younger than 35 years, as they were ten times more likely (OR=10.3, 95% CI=2.3-45.5) to have been tested than the wait-listed caregivers (see Figure 14). The effect of the program did not vary by caregiver gender. This finding is important given that the HIV prevalence rates in South Africa are highest among the 25-49 age females (Shisana et al., 2014).

Figure 14. Caregivers 35 years and younger: tested in last year



In the child sample, while positive trends can be seen in child HIV testing percentages between both the intervention and waitlist groups (Figure 15), no significant program effect was found for lifetime rates of HIV testing among children. The effect did not vary by child's age nor gender.

Figure 15. Children ever tested for HIV



This evaluation has focused on the lifetime rates of child HIV testing which was assessed at both the baseline and follow up. However, child HIV testing in the previous year was only assessed at follow up. As seen in Figure 16, the percentage of children tested for HIV in the previous year was significantly higher among children enrolled in the program than the wait-list children (OR = 1.37; *p* = 0.02). However, due to the lack of longitudinal data on child HIV testing, this effect cannot be attributed to the program.

Figure 16. Children tested in last year

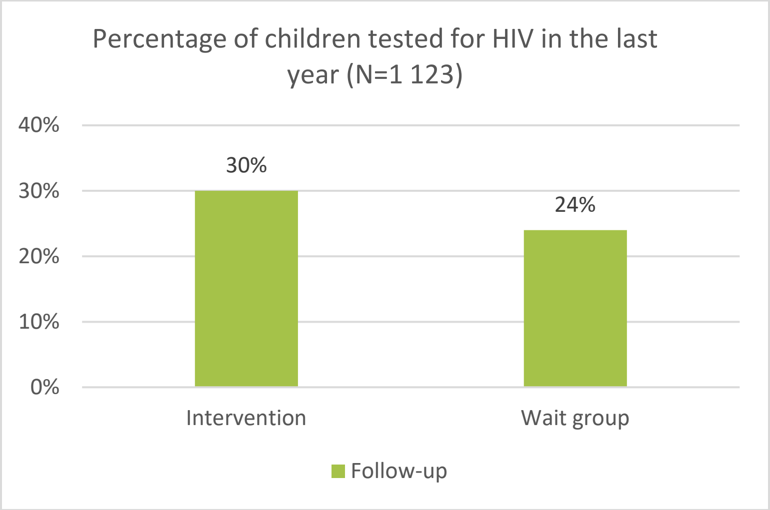
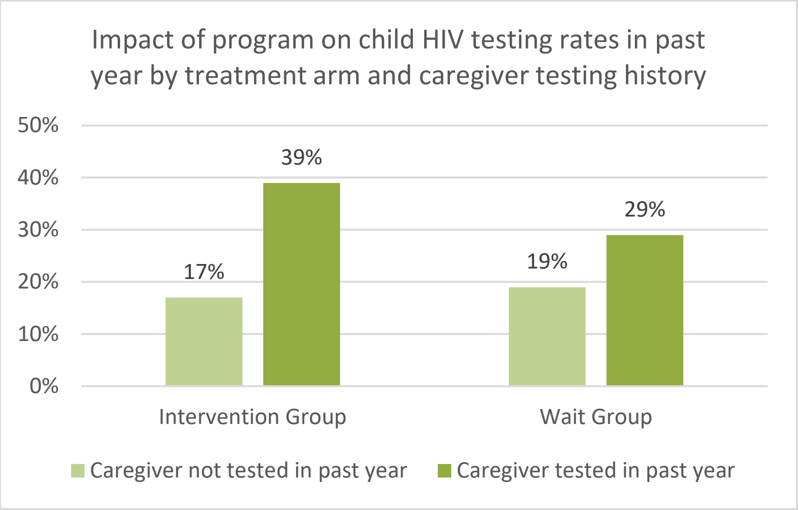


Figure 17 shows the impact of caregiver testing for HIV on child's HIV testing uptake indicating that children whose caregivers (1) participated in the home visiting programme and (2) had been tested in the previous year, were almost five times more likely to have been tested at follow-up than other children (OR=4.7, 95% CI=1.2-18.3). These findings highlight the importance of a family-based approach to testing as caregiver testing was found to be an important precursor to child testing.

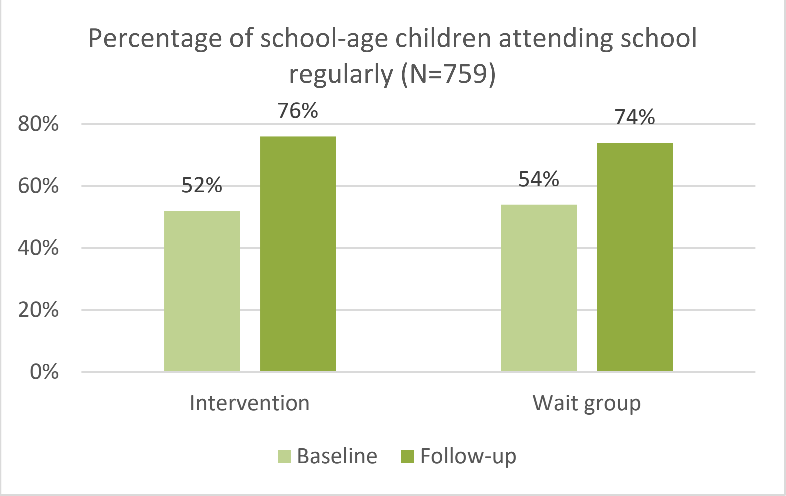
Figure 17. Impact of caregiver testing on children HIV testing



Outcome 2: School Attendance

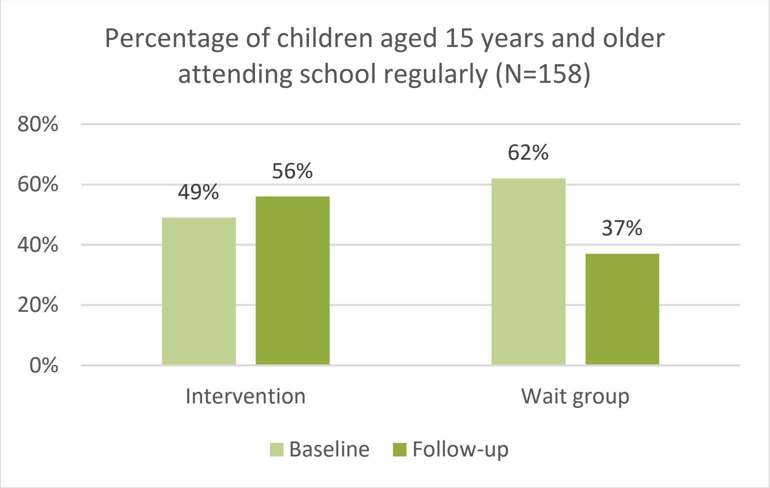
As in the quasi-experimental study, school attendance was measured by asking caregivers how often the school-age children in their care had missed school in the preceding school week (excluding public or school holidays). Although Figure 18 shows positive trends in regular school attendance among all school-age children in this study, with increases in both intervention and wait groups of 22% and 20% respectively, no significant program effect was found for this indicator.

Figure 18. School attendance in preceding week among all school-age children



However, a significant program effect in school attendance was found among children aged 15 and older. As seen in Figure 19 below, there was a sharp decline in school attendance among the children in the waitlist group, and a slight increase among the intervention group. In addition, children aged 15 and older in the intervention group were 6 times more likely to attend school more regularly than those in the wait list group (OR = 6.5, *p* = 0.015).

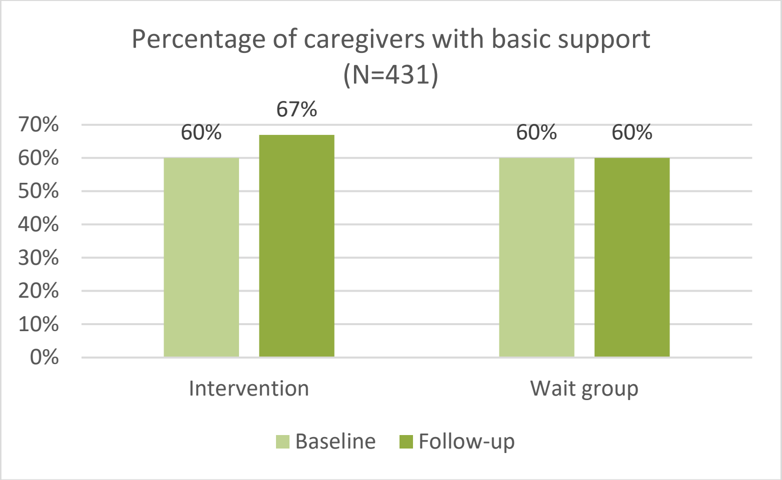
Figure 19. School attendance in preceding week among children 15 years and older



Outcome 3: Caregiver Psychosocial Wellbeing

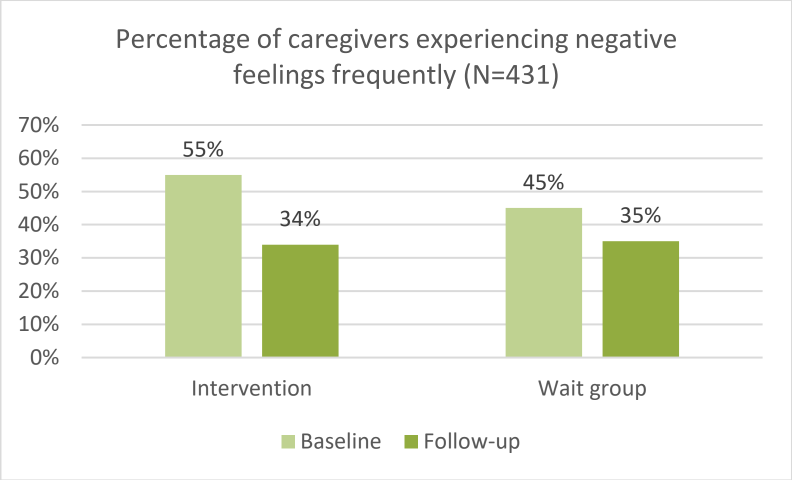
In both survey rounds, caregiver psychosocial well-being was measured with two indicators, self-reported basic support they receive and negative feelings they experience. Basic support was assessed by asking caregivers whether they had someone in their lives to turn to for help with a personal problem, with daily chores if they are sick, to show them love and affection, and with whom to do enjoyable things. Figure 20 below shows the percentage of caregivers who reported receiving basic support at the baseline and follow-up. As seen in the graph, while there was a slight increase in basic support reported among intervention group caregivers between baseline and follow-up (i.e. 60% to 67%), there was no significant difference found between intervention and wait group caregivers in the overall basic support they reported.

Figure 20. Caregiver Psychosocial Wellbeing: Basic Support



Self-reported experiences of negative feelings such as sadness, depression and anxiety, was the second indicator of caregiver psychosocial wellbeing. Although there was no significant program effect found in overall negative feelings reported by caregivers in the intervention and waitlist groups, there was a significant program effect on the frequency of negative feelings. That is, caregivers in the intervention group had significantly lower odds (cut in half) of having negative feelings (OR=0.05; *p*=0.038) than those in the wait group. As seen in Figure 21, the frequency of negative feelings experienced by caregivers dropped by 21% in intervention group, and 10% in the wait group.

Figure 21. Caregiver Psychosocial Wellbeing: Negative Feelings



Outcomes 4: Early Childhood Development

As in the quasi-experimental study, two indicators were used to capture changes in Early Childhood Development among children ages 1-5 (N=310), namely immunization and stimulating activities. At both rounds, the vast majority of caregivers (96-100%) reported having Road to Health clinic cards for their children. However, considerably smaller percentage of caregivers were able to produce the health card as evidence (i.e. verified card) upon request (see Figure 22). For children whose caregivers produced verified health cards, immunization was assessed by recoding child's immunization status indicated on the health card. As seen in Figure 22 and Figure 23, no program effects were found on the number of verified health cards and immunization rates of children under the age of 5.

Figure 22. Child Health Clinic Cards

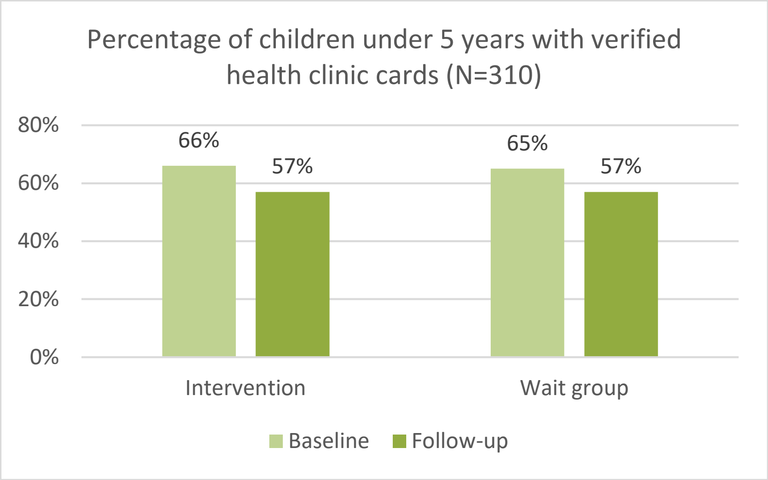
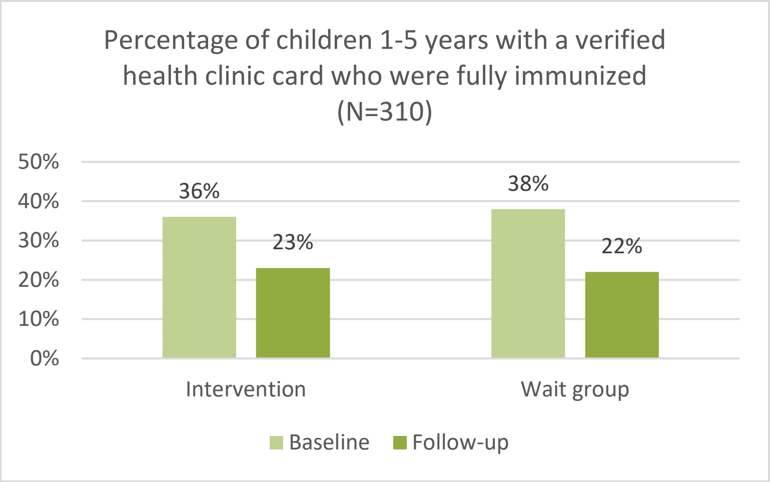
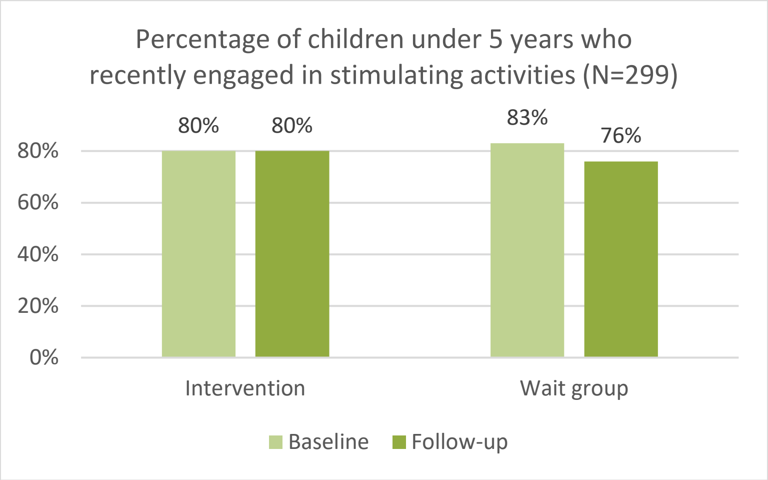


Figure 23. Early Childhood Development: Immunization



Stimulating activities was the second measure of Early Childhood Development and it was assessed by asking caregivers whether, in the preceding 3 days, children under 5 years of age engaged in stimulating activities (e.g. reading books, telling stories, singing songs, playing and taking out of the yard) with other household members. Figure 24 below shows steady rates of stimulating activities reported by caregivers in the intervention and waitlist groups, at both baseline and follow-up stages of data collection, with no program effect found.

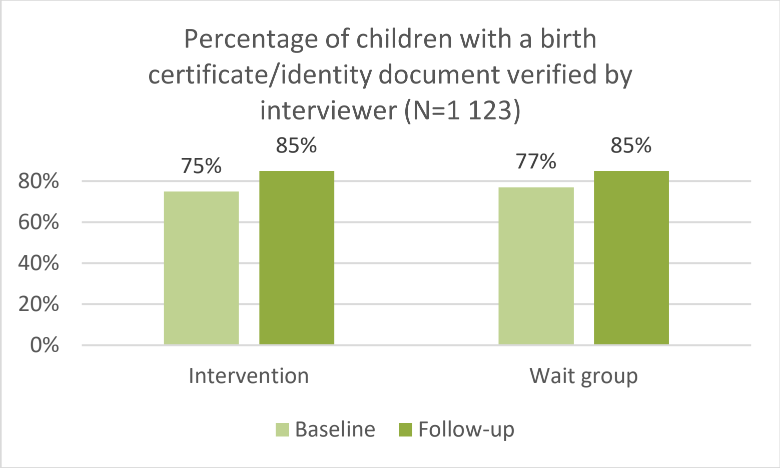
Figure 24. Early Childhood Development: Stimulating activities



Outcome 5: Access to Social Services

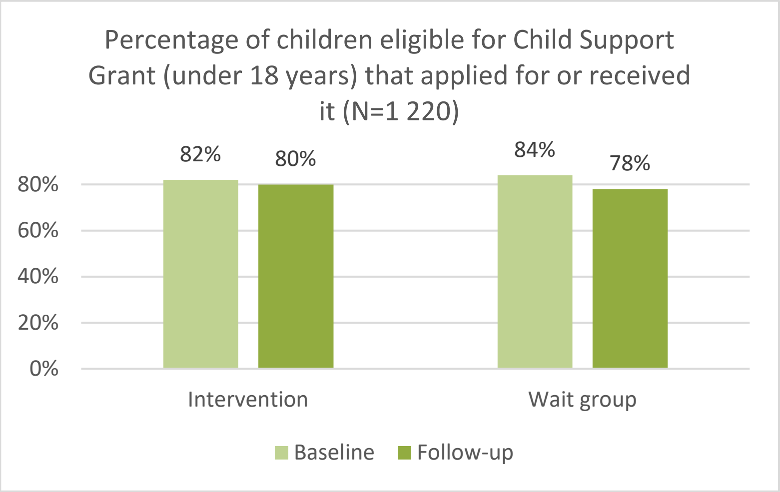
To assess the final outcome ‘Access to Social Services’, caregivers were asked whether the children in their care had a birth certificate or ID document. At baseline, 95% of caregivers reported that the children in their household had identity documentation. However, as reported in Figure 25, a lower percentage were actually able to produce the ID document for children in their care upon interviewer request (i.e. verified identity document). Although the percentage of children with verified identity documentation has increased from the baseline to follow-up surveys in both intervention and wait groups, no significant program effects was found for this indicator.

Figure 25.Access to Social Services: Verified Birth Certificate



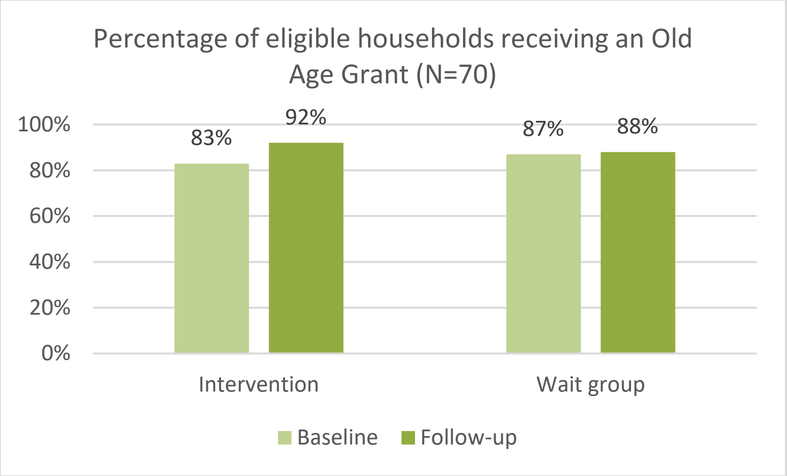
The remaining indicators of access to social services included questions of whether caregivers, at both rounds of data collection, were in receipt of, or had applied for, the Child Support Grant for any of the children in their care, and whether any members in their household were in receipt of, or had applied for, the Old Age Grant. Analysis of these indicators was limited to children and household member eligible for these grants. With respect to Child Support Grants, Figure 26 below shows a slight decrease in the percentage of eligible children who were receiving or had applied for the Child Support Grant. There was no significant program effect found for this indicator.

Figure 26. Access to Social Services: Child Support Grant by eligibility



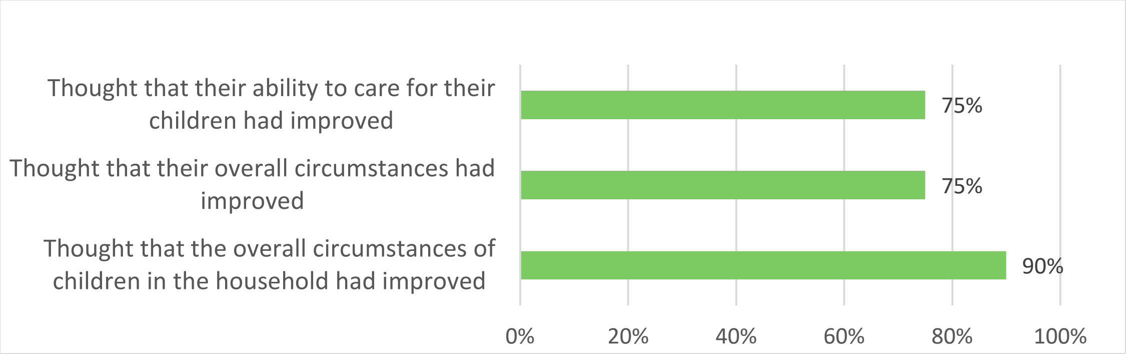
With respect to Old Age Grants, Figure 27 shows slight increases in the percentage of eligible adults who either received or had applied for the grant. However, there was no significant program effect found, possibly due to a small sample size (N=70).

Figure 27. Access to Social Services: Old Age Grant by eligibility



Finally, at the follow up data collection round caregivers were asked to share their opinions about the program effects on their lives. More specifically, caregivers were asked about the home visits they received and whether (and how) their lives may have changed as a result of program participation. Responses to these questions were obtained from 167 of 216 program receiving caregivers. Eighty-four percent of respondents said they had at least a monthly care worker visit and 43% reported bi-monthly care worker visits. The average duration of the visits was one hour. Figure 28 below reports participants' perceptions on the overall changes in their lives resulting from the program participation. That is, 75% felt that their ability to care for their children had improved. Seventy-five percent thought that their overall circumstances had improved, and 90% said the overall circumstances of children in the household had improved as a result of the FF home visiting program. In addition, approximately 70% of caregivers reported regular discussions of their own HIV testing and 76% of children's HIV testing with care workers during these visits.

Figure 28. Participants' perspectives on the program impact on their lives



Limitations of the RCT

Several limitations should be taken into account when considering the generalizability of findings from the RCT study. For example, while the estimates of program effect for caregiver HIV testing was based on change over the study period, the program effect for child HIV testing in the previous year was estimated in cross-sectional models controlling for ever having been tested at baseline which limits causal inference for this indicator. The lack of universally accepted outcome measures that capture the range of services provided by home visiting organizations such as Future Families is another key limiting factor in the program evaluation. While the study used measures with a history of testing and successful application in similar populations and contexts, alternative measures may have produced different results, especially for the outcomes pertaining to early childhood development and access to social services. Finally, this evaluation included only one follow-up assessment, restricting an exploration of program effects that emerge over a longer timeframe. A longitudinal evaluations design with several long-term follow-up assessments would need to be developed to examine the endurance of program effects over time.

Conclusions and Recommendations

The evaluation study presented in this report was designed to address the effectiveness of Future Families' holistic, family-based approach to addressing the needs of OVC by providing caregivers with information, psychosocial support, and access to external services through paraprofessional home visiting in urban township communities in Pretoria/Tshwane area in South Africa. It included a quasi-experimental design component and a randomized control trial to provide both initial findings to inform immediate programming and provide rigorous evidence of program impact. Overall, this study contributes to strengthening the evidence base for effective family-centered programming by demonstrating that providing vulnerable families with one-on-one support and education from trained care workers have the potential of increasing HIV testing uptake, contributing to improved caregivers' psychosocial wellbeing, and increasing school attendance among vulnerable youth. This adds to the growing body of recent research that have emphasized the value of trained and supported home visitors to OVC families in poorly resourced settings by increasing social grant uptake and improving children's wellbeing (Thurman, Kidman, & Taylor, 2015).

Summary of key findings

Key findings from the quasi-experimental analysis:

- *Caregiver HIV Testing:* The difference in lifetime HIV testing between caregivers already in receipt of FF home visiting program and caregivers from newly enrolled households was statistically significant indicating that the percentage of caregivers who had ever been tested for HIV is significantly higher in the households already enrolled in FF home visiting program. There was no significant difference between the two groups of households in HIV testing in the previous year.
- *Child HIV Testing:* There was a statistically significant difference between the two groups of households in child HIV testing suggesting that program-receiving households had a higher percentage of their children tested for HIV compared to newly enrolled families. In addition, the difference in testing was more pronounced for orphans, with 49% of orphans from previously enrolled households tested compared to 24% among children from newly enrolled households. Receiving FF services increased the odds of a child being tested by 97% to children from similar households that had not yet received services. Orphans living in program-participating households had double the odds of being tested compared to non-orphans living in similar non-participating households.
- *School Attendance:* The difference between the two groups of school-age children on school attendance indicator was statistically significant indicating that children from program-participating households attended school more regularly compared to the children from newly enrolled households. In addition, a significantly higher percentage of adolescents aged 15 and older from program-receiving households (63%) attended school more regularly as compared to teenagers from newly enrolled households (50%).

- *Caregiver Psychosocial Wellbeing:* The difference in percentages of basic support available to caregivers in both program-participating and non-participating households was statistically insignificant indicating that a similar amount of basic support was available to newly enrolled and previously enrolled caregivers.
- *Early Childhood Development:* The percentage of children aged 1-5 years with Road to Health clinic cards observed by the interviewer and indicating full age-appropriate immunization was significantly higher in newly enrolled households (37%) as compared to program-receiving households (24%). In terms of stimulating activities indicator, similar numbers of children in both enrolment groups were reported to have recently engaged in stimulating activities, and the difference between the two groups was statistically insignificant.
- *Access to Social Services:* There was no statistically significant difference in family's access to Child Support Grant (CSG) among the two groups of households determined eligible to receive this grant as equal numbers of caregivers (approx. 80%) in both enrollment groups reported being in receipt of a CSG. The percentage of eligible households receiving Old Age Grants (OAG) as 11% higher in previously enrolled households as compared to newly enrolled households. However, this difference was not statistically significant indicating that both groups of enrollees had similar access to OAG.

Key findings from the randomized control trial:

- *Caregiver HIV Testing:* In the caregiver sample, while lifetime HIV testing rates were not significantly affected by the program enrolment, recent HIV testing (in the past 12 months) was positively impacted by the program: at follow-up, caregivers enrolled in the home visiting program were three times more likely to have been tested for HIV in the preceding year than caregivers in the wait group. In addition, the program effect was particularly prominent among the intervention group caregivers younger than 35 years, as they were ten times more likely to have been tested in the previous year than the wait-listed caregivers.
- *Child HIV Testing:* While positive trends were observed in child HIV testing between both the intervention and waitlist groups, no significant program effect was found for lifetime rates of HIV testing among children. In terms of HIV testing more recently, in this evaluation child HIV testing in the previous year was only assessed at follow up. The results showed that the percentage of children tested for HIV in the 12 months was significantly higher among children enrolled in the program than the wait-list children. However, due to the lack of longitudinal data on child HIV testing, this effect cannot be attributed to the program. Most importantly, the was a significant impact of caregiver testing for HIV on child's HIV testing uptake indicating that children whose caregivers (1) participated in the home visiting program and (2) had been tested in the previous year, were almost five times more likely to have been tested at follow-up than other children.
- *School Attendance:* While positive trends were observed in regular school attendance among all school-age children in both intervention and wait groups, no significant program effect was found for this outcome. However, a significant program effect in school attendance was found among

children aged 15 and older as children of this age in the intervention group were 6 times more likely to attend school more regularly than those in the wait list group.

- *Caregiver Psychosocial Wellbeing:* There was no significant difference between intervention and wait group caregivers in overall basic support they reported available to them. In addition, while there was no significant program effect found in overall negative feelings reported by caregivers in the intervention and waitlist groups, there was a significant program effect on the frequency of negative feelings. That is, caregivers in the intervention group had significantly lower odds (cut in half) of having negative feelings than those in the wait group (the frequency of negative feelings experienced by caregivers dropped by 21% in intervention group, and 10% in wait group).
- *Early Childhood Development:* No program effect was found on the number of verified health cards and immunization rates of children under the age of 5 whose caregivers produced verified health cards. In addition, there was no program effect found on the stimulating activities indicator. That is, there was no difference between the intervention and waitlist group and across time within groups suggesting steady rates of stimulating activities reported by caregivers in the intervention and waitlist groups throughout the study.
- *Access to Social Services:* While there were positive trends observed in the percentage of children with verified identity documentation in both intervention and wait groups, no significant program effects was found for this indicator. There was a slight decrease in the percentage of eligible children who were receiving or had applied for the Child Support Grant, however there was no significant program effect found for the uptake in CSG among intervention households. In addition, while there was a slight increase in the percentage of eligible adults who either received or had applied for the grant, there was no significant program effect found for this indicator.

Recommendations

The study reports significant improvements in several primary outcomes among program participants and serves as a window into the factors associated with vulnerable children's and at-risk families access to HCT in peri-urban settings in South Africa, as well as aspects of programming that may contribute to gains in testing prevalence. Nevertheless, there is a clear need for further testing and scale-up of the Future Families and other interventions to supplement home visiting. The evaluation team hopes that the results of this study can be used to guide resource allocation and program design to provide support to HIV-affected families. Priorities should include identifying sources of funding, providing specialized training and compensation to this cadre of workers, and incorporating monitoring and evaluation in every program implementation plan. Drawing on the findings of this evaluation, a number of recommendations for programming and future research have been identified:

Recommendation 1: Explore ways and improve efforts to better reach most vulnerable populations. This evaluation has found a significant program effect on caregivers HIV testing uptake which, in turn, was an important precursor to child's testing. The program, however, had no direct effect on child testing. In addition, ever tested rates among children were still low. Only a few caregivers surveyed in this study were HIV+ which may be due to low levels of disclosure. These findings point to the need to find ways to reach the most vulnerable populations, particularly OVC, in order to link them to services and bolster HCT promotion.

Recommendation 2: Explore ways to improve school attendance among children and adolescents in the FF serviced families. Although the results of the RCT study indicate positive program effect on school attendance among adolescents aged 15 and older, absenteeism among children from different age groups did not improve. While some reasons behind children's absenteeism (e.g. bad health and child labor) cannot be addressed by the program, there are ways to improve school attendance. For example, efforts should be directed to raising awareness about the importance of attending school every day even in the early grades. Non-monetary incentives could be used to recognize children and families that have started the year on time, or show high attendance.

Recommendation 3: Strengthen efforts to improve caregiver psychosocial health. While no program effect was found in overall negative feelings and social support reported by caregivers in the study, there was a significant program effect on the frequency of negative feelings and a positive trend in basic support among caregivers. Regardless, there remains a clear need for alternative evidence-based interventions that can more effectively address high levels of psychological distress which is common in HIV-affected families and particularly caregivers. The potential for structured time-limited interventions such as interpersonal group therapy, cognitive behavioral therapy, and other curriculum-based support groups has been highlighted by research evidence from sub-Saharan Africa to effectively alleviate psychological distress in caregivers, including those affected by HIV and AIDS. As such, targeted education and psychosocial support that home visitors provide may also help caregivers to understand the benefits of HIV testing, cope with the implications of a positive diagnosis and reduce stigma associated with HIV and AIDS.

Recommendation 4: The training course for the FF care workers should include methods and content on how to address stigma in the community. HIV-affected households are particularly vulnerable and thus the care worker training course should include special modules and techniques on how to work and communicate sensitive information in a non-judgmental way to avoid stigmatization or discrimination of program enrollees.

Recommendation 5: Establish referral procedures that are sensitive to the research context. In this study, social service referral sheets were generated in cooperation with program partners for distribution to all potential study participants. This information was intended to enhance participants' knowledge about services available in their community. However, referral sheets are not a substitute for comprehensive active referral protocols. Interviewers must be provided with explicit guidelines for referring participants who are in overt distress or at risk of harm. In addition, interviewers/fieldworkers are generally not social workers and need to be trained to recognize and recommendations produced from program evaluation do not find their way into practice. Evaluators can promote both local ownership and improved program practice by facilitating workshops with implementing partners that are designed to help enumerate and expand the application of minimum standards for service delivery.

Recommendation 6: Maintain regular communication with local stakeholders about evaluation processes and results. Regular dialogue mechanisms with implementing organizations and other local key stakeholders are critical to addressing impediments to program success. Although it is important for researchers to operate independently from implementers, it is essential to have open communication about roles, the purpose of the evaluation and its protocols and potential benefits. In the evaluation team's experience, when implementers and other stakeholders have a well- developed understanding of how learning about the program supports quality improvement, they are often eager to support the research. Continued engagement of local stakeholders maintained throughout the research process contributes to ensuring local relevance and the broader utilization of findings.

Recommendation 7: Adhere to culturally sensitive research approach. Sensitivity in the wording of research instruments and consent/assent forms is necessary to avoid stigmatization or discrimination of participants throughout the research process. All research documents must be written at the language level of participants (e.g. with youth- specific reassurances) designed to ensure well-informed and voluntary participation. In addition, research in international settings also requires cultural and linguistic competence in order to develop appropriate consent/assent language and procedures. Evaluation research also demands sensitivity to service expectations and researchers need to verify that participants understand the nature and intent of the study, that it will not affect service delivery and is strictly voluntary.

Recommendation 8: To help tailor programming, future research should focus on identifying the aspects of home visiting intervention models that are most influential for HCT and other services uptake in different contexts. Future studies may help to identify the key attributes of home visiting that can most effectively link at risk and vulnerable families to HIV testing, grant access and other social services. In addition, to strengthen evidence base for home visiting programs provided by trained care workers, an RCT design employing several long-term follow-up stages should be used, if possible. There is also scarce evidence on whether limited focus programming (i.e. targeting one or two outcomes) results in better outcomes compared broad programming (i.e. targeting multiple outcomes), and thus future research should seek to compare interventions that target HIV-affected families on multiple outcomes with those that target HIV-affected families on fewer and more specific outcomes.

Dissemination

This study was designed to produce knowledge to inform existing practices and guide future investment in programming for HIV-affected families in South Africa. Findings from the baseline and quasi-experimental analysis were made available to Future Families as soon as they were available in order to identify service gaps and successes. Preliminary data from the RCT study was shared with Future Families and other stakeholders in 2016. In addition, to encourage the scale-up of proven intervention and improvement of existing programming for orphans in Sub-Saharan Africa, findings were submitted to peer-reviewed journals for publication. Such publications enhance the credibility of research findings and expand their influence. The following list details different channels through which the impact evaluation results and other findings from *Linkages to Care* have been disseminated among local and international audiences:

International and national conference presentations:

- Poster presentation at the 21st International AIDS Conference: *Home visiting increases HIV testing uptake among vulnerable children and their caregivers: Results from a randomized controlled trial in South Africa* (Durban, July 2016).
- Poster Presentation at the 7th Annual SA AIDS Conference: *Future Families Home Visiting Program in Tshwane Increases Child HIV Testing* (Durban, June 2015).

Presentations to study partners:

- Presentation at Future Families AGM: *Future Families Home Visiting Program Evaluation in Tshwane, Gauteng* (Ms. Spyrelis, Pretoria, August 2016). Evaluation results from the RCT study presented to Future Families director, staff and board members at their AGM. In addition, a workshop with Future Families director and key staff members was organized and followed by an in-depth discussion of the abovementioned presentation, resulting in an action plan based on the results.
- Interactive Workshop with Future Families: *Future Families Baseline Survey: Preliminary Findings to Inform the Way Forward* (Pretoria, November 2014)

Presentations at the PEPFAR OVCY technical meeting:

- Presentation on *Home Visiting: Let's Get Focused* (Dr. Thurman, Pretoria, September 2016)
- Presentation on *Key Considerations – Program attendance and fidelity in structured programs* (Dr. Thurman, Pretoria, November 2015).
- Roundtable discussion on: *Future Families Home Visiting Program Increases HIV Testing* (Dr. Thurman, Pretoria, November 2015).

Peer-reviewed publications:

- Thurman, T. R., Luckett, B., Taylor, T., & Carnay, M. (2016). *Promoting uptake of child HIV testing: an evaluation of the role of a home visiting program for orphans and vulnerable children in South Africa.* AIDS Care, 28(sup2), 7-13.

Research brief geared to programmers and policy makers:

- *HIV testing uptake is greater among orphans and vulnerable children exposed to a home visiting program: Results from a quasi-experimental study in South Africa*. Summary of paper published in *AIDS Care,* 2016.
- *Home visiting increases HIV testing among caregivers of orphans and vulnerable children: Results from a randomized controlled trial in South Africa*. Summary of Conference Poster at *International AIDS Conference*, 2016.

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