An Evaluation

Promoting HIV Prevention and Testing: Evaluation of the Integrated AIDS Program-Thika in Kenya

Prepared by:

Tonya R. Thurman, MEASURE Evaluation, Tulane University School of Public Health, New Orleans, LA, USA
Paul Hutchinson, MEASURE Evaluation, Tulane University School of Public Health, New Orleans, LA, USA
Bridget Lavin, MEASURE Evaluation, Tulane University School of Public Health, New Orleans, LA, USA
Lawrence Ikamari, Population Studies Research Institute, University of Nairobi, Kenya

Introduction

HIV has greatly affected communities across sub-Saharan Africa, including Kenya, where over 5% of the population is infected, and 1.1 million children have been orphaned due to AIDS.[1] In response, the U.S. President's Emergency Plan for AIDS Relief has provided technical and financial support to humanitarian programs within countries hard-hit by the epidemic, including Kenya. Between 2003 and 2008, the plan has invested over U.S. $18 billion on HIV and AIDS prevention, treatment, and care services. Funding for the next five years was expected to increase.[2] As these programs continue to expand, futher understanding of their impact and effectiveness is needed.

To contribute to this knowledge-base, MEASURE Evaluation received funding from the plan to conduct evaluations of four different, multifaceted programs for orphans and vulnerable children (OVC) — two in Kenya and two in Tanzania. Each evaluation examined the effectiveness of specific program strategies to improve the lives of OVC aged 8-14 and their guardians. While the emphasis of the evaluations was to explore the impact of interventions on OVC, some programs included initiatives targeting other priorities of the plan, such as HIV prevention. In particular, the Integrated AIDS Program-Thika (IAP) operating in Kenya included initiatives to promote HIV education and voluntary counseling and testing (VCT) within the broader community. This paper presents findings of the outcomes associated with these HIV prevention activities. The impact of IAP's efforts concentrating on OVC can be found elsewhere.[3]

University of Nairobi
Population Studies and Research Institute

This study was made possible by support from the U.S. Agency for International Development (USAID) under terms of Cooperative Agreement GPO-A-00-03-00003-00. The opinions expressed are those of the authors and do not necessarily reflect the views of USAID or the United States government.

March 2009 **SR-09-49A**

Intervention Model

IAP is a community and faith-based organization operating in Gatundu District (formerly part of Thika District) that receives technical and financial support from Pathfinder International. In addition to providing support to OVC and people living with HIV and AIDS (PLWHA), IAP has the following program objectives:

- Increase the number of informed decisions that contribute to preventing and controlling the spread of HIV and AIDS.
- Increase the number of people accessing VCT services.
- Build the capacity of youth and the community at large to address issues related to HIV and AIDS by raising awareness and decreasing stigma and discrimination.

To achieve these objectives, the program conducts HIV prevention and testing activities, including comprehensive HIV and AIDS educational campaigns and VCT promotion and services. A summary of IAP's HIV prevention and testing activities is described below. Readers are encouraged to see the program case study for further details on these and other interventions employed by IAP.[4]

Methods

Study Design — The outcome evaluation used a post-test study design with an intervention and comparison group constructed based on self-reported exposure to program activities. Readers should refer to the full IAP OVC evaluation report[3] to gather details on the methods, ethical considerations, and limitations of these results — only a brief summary is provided here.

IAP's HIV Prevention and Testing Activities

Education for Life Workshops

To increase HIV and AIDS awareness, IAP conducts Education for Life (EFL) workshops in a variety of community settings, including schools and community centers. EFL workshops have been developed with specific curricula for children, youth, out-of-school-youth, and a wide range of adults in the community, and they are typically one day in length for children and general adult community members, and one week for community leaders. EFL encourages HIV and AIDS prevention by providing information about transmission and prevention, sex and sexuality, decision making, and behavior change. Workshops among children also concentrate on broader life skills, including issues related to self-awareness, drug abuse, career choices, and character formation. Workshops among adults also include information and encouragement about VCT testing opportunities. This study examined the potential impact of the EFL program for school-children and community adults.

VCT Services and Promotion

To increase access to VCT services, IAP established a VCT center in Mang'u location in 1999. IAP also provides mobile VCT clinics that frequent common community areas, such as work places, markets, and churches in communities without a permanent VCT clinic, as well as in communities with a high number of migrant workers. Community-wide mobile clinics typically take place between two and four times a year, and mobile clinics at large-scale farms and plantations occur on a monthly or weekly basis. Prior to the arrival of the mobile clinic, IAP conducts sensitization meetings at and around the site, which include discussion of the opportunity and its benefits, and distribution of information materials to people in the community. IAP also regularly promotes the in-house clinic at community forums, such as markets and churches. This evaluation focused on exposure to these VCT sensitization meetings.

The full research protocol and all instruments were approved by institutional review boards at Tulane University in the United States and Kenyatta National Hospital in Kenya. Data were collected from April to August, 2007, in two locations within Kamwangi Division — Mang'u and Githobokoni. The research team identified all 6,224 households within the study areas, and all households were approached to participate in the survey, though only those with a child age 8-14 were eligible.

In all eligible households, the research team attempted to conduct face-to-face interviews with the child and his or her guardian. If more than one child age 8-14 lived in the household, up to two children were selected randomly to be included in the study. The final sample included 2,487 guardians and 3,423 children, representing 40% of the total households in the area.

Analyses — Analyses focused on HIV knowledge among children (four indicators) and having ever been tested for HIV among adult guardians. Whether exposure to intervention activities was associated with these outcomes was examined through use of bivariate and multivariate analyses. Bivariate analyses included one way ANOVA for continuous outcomes and chi-square for categorical outcomes. These unadjusted means and percentages are presented to demonstrate the extent of difference between those exposed to interventions and those not exposed. If a significant ($p < .05$) bivariate association between program exposure and the outcome was found, multivariate analyses (ordinary least squares and probit regression as appropriate) were conducted to assess whether differences persisted after controlling for background characteristics of the sample (Table 1).

Table 1. Outcomes and Control Variables in Multivariate Analyses

Outcome	Control Variables
Ever had an HIV test among guardians	Age, gender, marital status, level of education, current illness, household socioeconomic status, number of children in the household .
HIV knowledge of children age 8-14 (four indicators): • *believe it can be prevented* • *index of correct prevention knowledge* • *reported incorrect prevention method* • *believe a healthy person can have the AIDS virus*	All guardian and household characteristics described above as well as child characteristics of: age, gender, orphan status (non-orphan, maternal, paternal, double orphan), relationship to guardian (mother, father, other) and number of households the child had lived in the last year.

Limitations — There are several limitations to consider when interpreting these results. First, the post-test study design cannot discern causality for differences found between individuals exposed to IAP interventions and those not exposed. These differences may have been pre-existing. For example, in measuring whether an individual has ever been tested for HIV, the data likely contain cases that were tested before program exposure, and this study cannot differentiate these cases from those tested after program exposure.

Second, the unexposed group may have been systematically different from the exposed group. For instance, those who reported exposure to IAP prevention and testing community sensitization events may have been more motivated to participate in these activities and obtain an HIV test, perhaps due to a personal concern of infection. This limitation is expected to be more likely for the guardian-level outcome of VCT versus the child-level outcomes concerning HIV knowledge, as children's participation was controlled by their school administration. However, given that sensitization meetings among adults were held in conjunction with other community activities, such as church sermons and at factories and plantations during working hours, many community members had comparable opportunities for exposure. Analyses further attempted to control for any measurable differences between the two groups, particularly socioeconomic and demographic dimensions. Nonetheless, the results of this study must be interpreted cautiously because of potential selection bias and lack of baseline information.

Readers should also be aware that this study cannot definitively attribute impacts from the adult community sensitization activities to IAP, as respondents may have participated in similar interventions that were not provided by IAP. However, the study sites were specifically selected because they lacked significant community-based organization (CBO) presence beyond IAP. Lastly, this study does not examine any outcomes among community members falling outside the inclusion criteria of this sample — children age 8-14 and their guardians.

Results

Description of the Sample — Among the 3,423 children interviewed for this study, slightly more than half were male. Nearly 44% were between 12 and 14 years old and most (99%) were enrolled in school and were being cared for by their mother (78%). The majority (92%) of the 2,487 guardians interviewed for this study were female. The average age of guardians was 40.3 years, and 19% were 50 years or older. The socio-economic profile of households varied, with 24% in the lowest wealth category and 16% in the wealthiest category. Further details on the sample can be found in the IAP OVC evaluation report.[3]

Program Exposure of Children — Children were asked whether they had received a school visit from IAP counselors, who conducted Education for Life (EFL) activities concentrating on HIV and AIDS education. Eighteen percent of children reported having received such visits (Table 2).

Table 2. Child Participation in Education for Life

	Percent
Received an EFL visit at school from IAP *(n=3,423)*	18.1
At these visits, children recalled discussing *(n=621)*:	
HIV and AIDS	76.0
healthy friendships	21.0
good use of leisure time	13.3
stigma of HIV-affected people	1.7
Children reported having discussed what they learned with friends *(n=621)*	55.2

These children (n=621) were asked an open-ended question concerning what they recalled talking about during this visit, and the vast majority (76%) indicated that the discussion concerned HIV and AIDS. Children also reported discussing issues with IAP counselors concerning healthy friendships (21%) and good use of leisure time (13%). Very few (2%) reported recalling that the discussions included issues related to stigma of those affected by HIV and AIDS. Over half (55%) of the children who received these visits reported they talked to their friends about what they learned.

Impact on Children's HIV Knowledge — HIV knowledge was measured in this study with four indicators that reflect children's understanding of prevention methods as well as misconceptions concerning HIV and AIDS. Variables included children's response to a question as to whether HIV could be prevented, an index generated to assess accurate knowledge of preventive methods listed by the child, whether they reported any incorrect prevention methods, and their response to a question as to whether a healthy looking person could have the AIDS virus. This information was gathered only among the 89.5% (n= 3,064) of the sample who reported having heard of HIV and AIDS.

Table 3 presents indicators of HIV knowledge reported among the full sample of children. Overall, 87% of those who had heard of HIV and AIDS believed it could be prevented. These children were asked an open-ended question as to how HIV was prevented and were encouraged to continue listing as many methods as they knew. Responses to this question were utilized to generate an HIV correct knowledge index and to discern whether they had any incorrect knowledge. The HIV correct knowledge index applied in this study was based on the items contained in a Demographic and Health Survey HIV module.[5] Participants' correct responses, such as using condoms or abstaining from sex, were summed, and higher scores reflect greater HIV knowledge. The scores of correct

Table 3. Child HIV Knowledge

	Percent
Believed HIV and AIDS could be prevented (n=3,054)	86.9
Correct knowledge of ways to prevent HIV (n=2,655)	
mean score = 3.46	
abstain from sex	81.4
avoid sharing razors	33.3
avoid injections with used needles	26.7
avoid transfusing unscreened blood	11.9
use condoms	3.7
limit sex/be faithful to one partner	3.7
avoid sex with prostitutes	2.6
limit number of sexual partners	1.1
avoid having sex with people who have many partners	1.1
Incorrect knowledge	
reported an incorrect mode of HIV transmission (n=2,655)	12.5
believed a person who appears healthy could not have the AIDS virus (n=3,060)	43.2

answers ranged from 0 to 9 and the mean score was 3.46 (standard deviation = 1.95). Children most commonly mentioned that HIV could be prevented by abstinence from sex (81%), avoiding shared razors (33%), and avoiding used needles (27%). Few children mentioned other key methods of preventing HIV and AIDS, such as condom use (4%) or faithfulness to one partner (4%).

Responses to the question concerning how HIV could be transmitted were also utilized to discern whether youth held any misconceptions in this regard. Those who mentioned one or more inaccurate prevention methods were classified as having misconceptions. Overall, nearly 13% of the sample listed one or more inaccurate methods of HIV transmission. Incorrect ways to transmit HIV that children mentioned included sharing personal items such as utensils, towels, and food; avoiding people with HIV and AIDS; kissing; maintaining good hygiene; using mosquito nets; taking medicines (e.g., some mentioned anti-retroviral therapies); prayer; medicines from traditional healers; and being a good and obedient person. Not sharing items and avoiding people with AIDS were most common, at 2% (n=83) and 1% (n=45), respectively.

In addition, all children who had heard of HIV and AIDS were asked if it was possible for a healthy person to have the AIDS virus. About 43% of the sample said that a healthy person could not have the AIDS virus (including the 2% who said they did not know).

Children who received EFL school visits from IAP counselors had higher levels of accurate knowledge concerning HIV prevention. They were more likely to know that HIV and AIDS could be prevented than those who had not received EFL visits (96% versus 84%, respectively). This difference was significant (p=.000) in multivariate models that controlled for background characteristics of the child, their guardian, and their households. Furthermore, children who received EFL visits reported a much higher number of accurate prevention methods than those who had not received these visits (Figure 1). This difference was also significant (p =.000) after controlling for other factors.

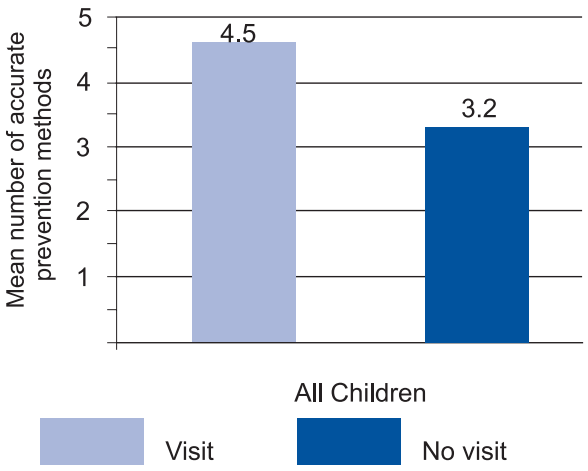

Figure 1. Accurate HIV knowledge reported by children by IAP EFL school visit.

Lower levels of misconceptions were also found at the bivariate level among those who had received EFL school visits from IAP (Figure 2). Children who received these visits were less likely

to report a healthy person could have the AIDS virus, and this difference persisted in multivariate analyses (p=.000). However, after controlling for background factors, there was no significant difference regarding whether children who participated in EFL listed an inaccurate method for preventing HIV.

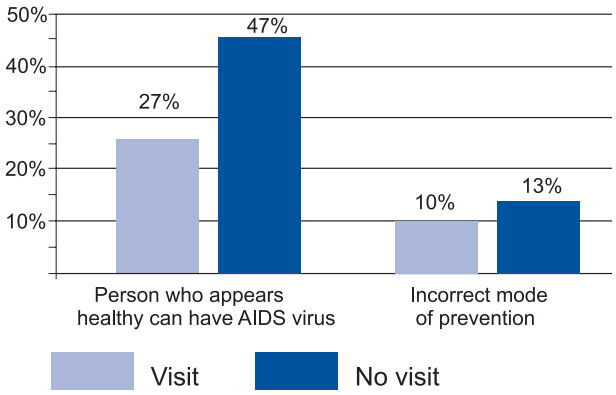

Figure 2. Inaccurate HIV knowledge reported by children by IAP EFL school visit.

Program Exposure of Adult Guardians — Guardians were asked whether in the last year they had attended a community meeting discussing either VCT or HIV prevention. Overall, 28.7% of adult guardians in the sample reported attending a VCT meeting and about one third (34.5%) attended an HIV prevention meeting. The adult HIV prevention meetings were part of IAP's EFL activities. The VCT meetings were held to specifically promote VCT testing, either encouraging the community to visit the in-house VCT clinic IAP operates or to receive a test at an upcoming mobile clinic.

Impact on Guardian HIV Testing — Guardians were asked whether they had ever been tested for HIV and AIDS, with "yes," "no," and "refused to answer" as the response options. Overall, 34% of guardians had been tested for HIV and AIDS and only six respondents refused to answer. Both those who attended a VCT meeting and those who attended an HIV prevention meeting reported higher levels of having been tested than those who did not attend (Figure 3), with the difference strikingly higher among those who had attended

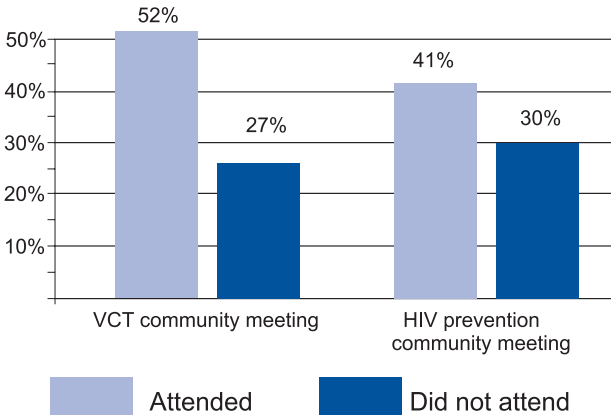

Figure 3. HIV testing by community meeting attendance.

VCT meetings. These differences were significant in multivariate models controlling for guardian and household characteristics (p=.000 in both models).

Conclusions

While this study does not offer conclusive evidence that the program had impact, it does present some encouraging findings concerning the potential influence of HIV prevention efforts. These findings indicate that IAP's HIV prevention and testing activities are associated with increased HIV knowledge among children and HIV testing among adults.

Child participants of IAP's school-based EFL activities were found to have significantly higher levels of correct knowledge and lower levels of misconceptions concerning HIV than non-participants. Further, 55% of children who received these visits reported they talked to their friends about what they learned, suggesting the potential for HIV knowledge to transcend beyond participants. Prominent theories of health behavior highlight knowledge as a key factor for HIV prevention, suggesting its importance in promoting protective behaviors.[6] It was not possible to assess whether EFL participation or HIV knowledge affected sexual risk behaviors in this study because questions pertaining to sexual activity were asked only of children age 12-14 (44% of the sample) and, among them, very few

(9%) reported being sexually active. However, an association between HIV knowledge and protective sexual behaviors has been found in past research in the United States and Africa.[7,8] As such, the program's positive influence on HIV knowledge may in turn contribute to safer sex practices and a reduction of HIV and AIDS among Kenya's next generation of adults.

This evaluation also underscores the important role that sensitization may have on HIV testing. Adults who attended community sensitization meetings discussing VCT or HIV prevention had significantly higher levels of HIV testing than did non-attendees. Interpretation of these results must take into account the limitation of the post-test design, as it is possible that some were tested even prior to sensitization meeting exposure. However, the results demonstrate a strong association between HIV testing and these meetings and a large difference in testing rates among exposed and unexposed individuals. Further, while the possibility of selection bias must also be considered, this bias was likely minimized by the fact that sensitization meetings were made available in highly accessible areas in which a wide variety of adults could attend. In the long run, the program's potential effect on increased HIV testing may not only contribute to reduced transmission but also facilitate care-seeking among those with HIV and AIDS.[9]

It is also notable that, as a result of the sampling criteria that focused on guardians of children, many of the adults in the sample were women (92%). An increase in HIV testing among women is important, particularly given their increased risk of HIV infection.[10] On the other hand, while an association between community sensitization and HIV testing was evident irrespective of gender, the impact of these efforts on men is less conclusive. This is an important area for further investigation.

These findings should be interpreted cautiously due to the post-test study design, potential selection effects, and other study limitations. Though some of the findings are in the anticipated direction, attribution of program impact is not conclusive. Future research should utilize more rigorous research designs to assess the impact of such initiatives.

Programmatic Implications

Comprehensive HIV and AIDS education remains necessary for youth. The EFL intervention was associated with higher levels of correct knowledge and lower levels of misconceptions concerning HIV. However, only 18% of children in the sample were exposed to this initiative, and among those who were not, misconceptions prevailed. For instance, 47% of non-participants believed a healthy-looking person could not have the AIDS virus. Limited information concerning HIV is common across Kenya as less than 50% of men and women age 15-24 are reported to have correct HIV knowledge.[11] Exposure to the EFL program was relatively limited and these findings highlight a need for increased reach of these activities. Expansion could be achieved by collaborating with more schools and other organizations that work with youth.

Further, in spite of the encouraging findings, the content of EFL programs could be enhanced. Abstinence was the most commonly mentioned HIV prevention method (81%). Very few youth mentioned sexually-related protective behaviors, such as limiting the number of sex partners (1%) or using condoms (4%). Research from the United States has consistently illustrated the inefficacy of abstinence-only messages in preventing HIV.[12] Advocates in Africa also suggest that exclusively promoting abstinence may be detrimental to curbing the epidemic.[13] In addition to providing comprehensive HIV knowledge, this study highlights the importance of specifically addressing potential misconceptions concerning HIV and AIDS. Nearly 13% of children reported mistaken beliefs concerning HIV prevention, such as avoidance of shared food, and EFL had no significant effect on this outcome. Likewise,

even among EFL participants, about one-quarter did not believe a person who appears healthy could have the AIDS virus. Furthermore, few children mentioned recalling discussions from IAP counselors concerning anything other than HIV and AIDS. Past research has suggested that HIV education may be most powerful if coupled with discussions pertaining to peer pressure and other social factors affecting behavior.[8,14] The potential long term impact of EFL is likely to be strengthened through expansion of the curriculum to address the spectrum of prevention methods, possible misconceptions, as well as issues pertaining to sexual negotiation and other life skills.

Finally, in spite of IAP's objective pertaining to stigma reduction, very few children (2%) recalled this as a topic of EFL activities. In addition, avoidance of people with HIV and AIDS was as commonly mentioned as an HIV prevention technique as was limiting one's number of sexual partners. Given these findings, there remains a need for these activities to have an increased emphasis on stigma reduction activities.

Community sensitization may promote VCT uptake and could be expanded. Though IAP offered access to VCT services to all adults in the participating communities through its in-house facility and mobile clinics, reported rates of HIV testing among adult study participants varied, depending on whether the adults had participated in sensitization meetings. In light of the sample composition, this difference was especially evident among women.

The case study describes several approaches by IAP that may explain the increased VCT uptake among sensitization meetings participants.[4] In particular, community leaders were engaged to participate in these sensitization meetings. For instance, the VCT team has collaborated with managers at factories and plantations to conduct VCT clinics on-site and asked them to encourage employees to attend. Managers introduced the VCT clinic (sometimes getting openly tested themselves), gave employees time off to get tested, and assured them that no one would be fired if an employee disclosed he or she was HIV positive. Past research has also demonstrated the important influence community leaders can have on promoting VCT testing.[15]

In addition to the relationships they have built with community stakeholders, IAP's sensitization meetings target a broad range of community members. IAP regularly holds sensitization meetings to promote the in-house clinic at public community forums, such as markets and churches. The mobile clinics are also held in such settings, including workplaces. Further, these sensitization meetings occur a week prior to launching a mobile clinic, to encourage and prepare people for the opportunity to get tested. To engage a variety of community members, they also incorporate diverse and creative themes into sensitization events. For example, they launched a campaign in February 2007 that specifically targeted couples and held a mobile VCT clinic during the week of Valentines Day.

In spite of IAP's ingenious approaches, less than one-third of the sample was exposed to these sensitization activities. IAP should explore opportunities for expanding coverage, such as identifying additional venues and increasing frequency of sensitization meetings.

Acknowledgements

We are grateful for the support of many individuals and partners who helped to realize this evaluation. The insight gleaned from all children and guardians who participated in the study is appreciated. IAP and Pathfinder International program staff in Kenya were also very collegial and cooperative. We also acknowledge the technical contributions and support from USAID in Washington and Kenya, USAID Orphans and Vulnerable Children Technical Working Group, and members of the Office of the Global AIDS Coordinator. Researchers and faculty from the University of Nairobi Population Studies Research Institute and Kristen Neudorf, technical consultant from Tulane University, helped to ensure data quality.

References

1. National AIDS Control Council (NACC), Office of the President, Kenya. *UNGASS 2008 Country Report for Kenya*. Nairobi, Kenya: NACC, Nairobi; 2008.
2. U.S. President's Emergency Plan for AIDS Relief (PEPFAR). Making a difference: funding [brochure]. Washington: PEPFAR; 2008. Available at http://www.pepfar.gov/documents/organization/80161.pdf.
3. Thurman TR, Hutchinson P, Ikamari L, Gichuhi W, Murungaru K, Nyangara F. *Community Education and Sensitization as an OVC Care and Support Strategy: Evaluation of the Integrated AIDS Program-Thika in Kenya*. Chapel Hill, NC: MEASURE Evaluation; 2009.
4. Thurman TR, Neudorf K. *A Case Study. Integrated AIDS Program Thika, Kenya.* Chapel Hill, NC: MEASURE Evaluation and Pathfinder International; 2007.
5. Central Bureau of Statistics (CBS) [Kenya], Ministry of Health (MOH) [Kenya], Kenya Medical Research Institute [Kenya], National Council for Population and Development [Kenya], ORC Marco, Centers for Disease Control and Prevention [Kenya]. *Kenya Demographic and Health Survey 2003*. Calverton, MD, USA: CBS, MOH, and ORC Macro; 2004. Available at http://www.measuredhs.com.
6. Family Health International (FHI). *Behavior Change: A Summary of Four Major Theories*. Arlington, VA: FHI; 2002.
7. Kirby DB, Laris BA, Rolleri LA. Sex and HIV education programs: their impact on sexual behaviors of young people throughout the world. *J Adol Health*. 2007;40:206-217.
8. Magnani RJ. Karim AM, Weiss LA, Bond KC, Lemba M, Morgan GT. Reproductive health risk and protective factors among youth in Lusaka, Zambia. *J Adol Health*. 2002;30(1):76-86.
9. Baggaley R. *The Impact of Voluntary Counseling and Testing. A Global Review of the Benefits and Challenges.* Geneva: Joint United Nations Programme on HIV/AIDS; 2001. Available at: http://www.etharc.org/vct/ImpactofVCT.pdf.
10. Policy and practice/key populations/women and girls. [Web page.] Geneva; Joint United Nations Programme on HIV/AIDS; nd. Available at http://www.unaids.org/en/PolicyAndPractice/KeyPopulations/WomenGirls/default.asp
11. United Nations Children's Fund (UNICEF). *Progress for Children. A World Fit for Children Statistical Review.* New York: UNICEF Division of Communications; 2007. Available at http://www.unicef.

org/progressforchildren/2007n6/files/Progress_for_Children_-_No._6.pdf.

12. Underhill K, Montgomery P, Operario D. Sexual abstinence only programmes to prevent HIV infection in high income countries: systematic review. *BMJ*. 2007;335:248.
13. Cohen J, Tate T. *The Less They Know, the Better*. New York: Human Rights Watch; 2005. Available at: http://www.hrw.org/en/reports/2005/03/29/less-they-know-better.
14. Slonim-Nevo V, Mukuka L. AIDS-related knowledge, attitudes and behavior among adolescents in Zambia. *AIDS & Behavior*. 2005;9(2):223-231.
15. Allen S, Karita E, Chomba E, Roth DL, Telfair J, Zulu I., et al. (2007). Promotion of couples voluntary counseling and testing for HIV through influential networks in two African capital cities. *BMC Pub Health*. 2007;7:349-359.

MEASURE Evaluation
Carolina Population Center
University of North Carolina at Chapel Hill
206 W. Franklin Street
Chapel Hill, NC 27516 USA
919.966.7482 / measure@unc.edu
http://www.cpc.unc.edu/measure