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PROMOTING COMMUNITY-BASED PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV IN TANZANIA'S KIGOMA REGION

AIDSTAR-One
AIDS SUPPORT AND TECHNICAL ASSISTANCE RESOURCES

JULY 2013

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AIDSTAR-One

John Snow, Inc.
1616 Fort Myer Drive, 16th Floor
Arlington, VA 22209 USA
Phone: 703-528-7474
Fax: 703-528-7480
E-mail: info@aidstar-one.com
Internet: aidstar-one.com

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ACRONYMS

ANC	antenatal care
ART	antiretroviral therapy
ARVs	antiretrovirals
CBDAs	community-based distribution agents
CHWs	community health workers
DHMT	district health management team
EBF	exclusive breastfeeding
FP	family planning
HBC	home-based care
HIV	human immunodeficiency virus
IUD	intrauterine device
JGI	Jane Goodall Institute
MOHSW	Ministry of Health and Social Welfare
MTCT	mother-to-child transmission
NRM/EG	natural resource management and economic growth
PEPFAR	United States President's Emergency Plan for AIDS Relief
PMTCT	prevention of mother-to-child transmission
RCH	reproductive and child health
RH	reproductive health
STIs	sexually transmitted infections
TACARE	Lake Tanganyika Catchment, Reforestation, and Education
VCT	voluntary counseling and testing

EXECUTIVE SUMMARY

AIDSTAR-One, in collaboration with the Jane Goodall Institute, the Kigoma Local Government Authority, and the Ministry of Health and Social Welfare (MOHSW), implemented a demonstration project on prevention of mother-to-child transmission (PMTCT) of the human immunodeficiency virus (HIV) in 10 dispensaries in a rural district in Tanzania's Kigoma Region for a period of six months, from March to September 2012. The goal of the demonstration project was to pilot a service delivery model for ensuring a continuum of care in remote communities. The model was intended to improve the competency and motivation of community health workers (CHWs) as a way of increasing access to and uptake of PMTCT services and strengthening community linkages to facility-based PMTCT services in rural areas.

Ten dispensaries (sites) were randomly selected; seven were designated as intervention sites and the remaining three as control sites. The 10 sites were similar in that they all had up to five CHWs trained by the Lake Tanganyika Catchment, Reforestation, and Education (TACARE) project, which was implemented from 1995 to 1999 in Kigoma Rural District. The project trained the CHWs on family planning (FP) to serve as community-based distribution agents (CBDAs) of FP, and later the CHWs received additional group training on providing home-based HIV care.

The CHWs from the seven intervention sites received a three-day basic PMTCT training (based on the MOHSW-approved curriculum and other internationally used resources) that included the value of antiretroviral (ARV) treatment for pregnant women and HIV-exposed infants, male involvement, and HIV risk reduction messaging. This training provided additional tools to help the CHWs counsel pregnant women on PMTCT, foster male involvement, and establish a link between PMTCT care provided in health facilities and the community. Besides the training, the CHWs in the intervention sites received supplies from AIDSTAR-One to facilitate their community work, including solar phones, solar chargers, bicycles, gum boots, reporting forms, and umbrellas. Seventeen indicators on service use were established for monitoring the project and data were collected monthly over a period of six months.

During an implementation period of six months, the CHWs provided FP services for HIV-affected households; delivered HIV risk reduction messaging; referred pregnant women for HIV testing, PMTCT, and HIV treatment; and provided HBC for HIV-affected households.

RESULTS

- Training the CHWs (including both men and women) can be an effective way to reach women with reproductive health (RH) messages in rural areas. The number of women reached with RH messages increased following the intervention; the total number of women reported to have received FP messages increased from around 200 at baseline to a peak of 800 (although this was not compared to the control site). Referrals for HIV testing and ARV treatment increased from 0 at baseline to 800 per month at the end of the six months—although the numbers varied from one site to another and use of services varied from month to month (in response to the availability of supplies). The training and support given to the CHWs led to an increase of women's knowledge, acceptance, and use of reproductive and child health (RCH) services, where the services were available. For example, when condoms became available, the number distributed increased sharply, from about 100 in July to 800 in August.

- Overall, there were increases in the use of antenatal care (ANC) services, the number of injectable contraceptives received, and the number of women who received counseling on exclusive breastfeeding at the intervention sites when compared with the control sites. For example, in the Bubango intervention site, ANC attendance increased from 150 per month to a peak of 240 (in April) and 250 (in July). In control sites, ANC attendance declined overall, from around 70 at baseline to 0 at endline.
- However, logistical weaknesses in the health care system constituted a significant impediment to demonstrating the effect of training CHWs on the uptake of PMTCT services. The demonstration project did not address health system issues such as the supply of HIV test kits, which were in shortage in all sites throughout the project's duration. This shows the vital importance of ensuring and maintaining a solid strategy for procuring and distributing supplies.

RECOMMENDATIONS

The Kigoma PMTCT demonstration project shows that CHWs can be effective in mobilizing pregnant women to use PMTCT services and can forge a link between the health services and the community. The demonstration of the effect of training and supporting CHWs on the use of PMTCT services remains a major challenge of this study. This was because the project was implemented over a short period of six months during which the health system was experiencing a stockout of HIV test kits. Since HIV testing is considered a crucial element of PMTCT programming, the stockout rendered the observation of increased utilization and the impact of PMTCT services impossible. Study findings suggested the following recommendations:

- *Where possible, engage and train CHWs or other outreach workers who are known to the community.* Because they know, and are known in, their communities, CHWs (including men and women) can engage women who would otherwise be beyond the reach of clinicians. Also, trust in the CHWs can contribute to increased use of PMTCT services.
- *Include logistical considerations in project design.* A demonstration project in a resource-limited environment such as Tanzania should consider the supply side: supporting the health system to provide adequate supplies, including HIV test kits, during project implementation to enhance the potential to demonstrate results.
- *Focus on strengthening the supply chain.* PMTCT services remain under-utilized in Kigoma Region, and the project has created a community-level human resource that can encourage women and their partners to use these services. The Office of the District Medical Officer should develop an interactive, collaborative relationship with development partners to resolve the perpetual shortage of expendable supplies, especially HIV test kits, to enable trained CHWs to perform effectively.
- *Engage district-level authorities to ensure sustainability.* The district health management team (DHMT) is responsible for management oversight of health services in a district. Future efforts should ensure that authorities at the district level are involved with and budgeted for project planning and oversight. Without support, including adequate supervision, trained CHWs may become less effective after the demonstration project ends. Integrating the supervision of CHWs into district-level budgets will help sustain PMTCT community services in Kigoma.
- *Continue supporting collaboration between CHWs and facilities.* Dispensaries provide the first level of support and supportive supervision of trained CHWs. The Kigoma DHMT should

explore mechanisms of fostering closer collaboration between trained CHWs and dispensaries to ensure a sustained PMTCT community service.

INTRODUCTION

As of 2012, Tanzania had an estimated population of 45,798,475 people and an annual population growth rate of about 2.7 percent (Populyst 2013). An estimated 1.4 million people in Tanzania were living with HIV in 2008, including 140,000 children under age 15 (USAID 2012). Among adults aged 15 to 49, the national prevalence of HIV was 5.7 percent. However, women in this age category were at higher risk, with a prevalence of 6.6 percent, compared with a prevalence of about 4.6 percent among men. Urban areas also had a higher prevalence (8.7 percent) than rural areas (4.7 percent) (TACAIDS 2008). It is estimated that 86,000 newborn infants are at risk of acquiring HIV every year, transmitted from their mothers either during pregnancy, labor, and delivery or through breastfeeding. Without intervention, the overall risk of mother-to-child transmission (MTCT) is about 20 percent to 45 percent (MOHSW 2007). Nearly one-fifth of all new HIV infections in Tanzania are because of MTCT, meaning that thousands of babies are infected by their mothers every year. A national PMTCT program was launched in 2000 consisting of four elements:

1. Primary prevention of HIV among women of childbearing age and their partners
2. Prevention of unintended pregnancies among women living with HIV
3. Prevention of vertical transmission of HIV from mothers to their infants
4. Provision of treatment, care, and support to women living with HIV and their partners, infants, and families (MOHSW 2008).

A detailed description of the approach appears in Appendix 1.

The national PMTCT program has been a success. Milestones include 93 percent of health facilities that provide RCH also offer PMTCT services. PMTCT services in Tanzania include routine HIV testing and counseling, ARV prophylaxis and treatment for mothers and children, safer delivery practices, counseling and support for safer infant feeding practices, long-term follow-up care for mothers and children, and FP (MOHSW 2008). However, the use of PMTCT is still far from being universal. About 98 percent of pregnant women attend ANC clinics at least once, and 81 percent of women who attend ANC in an RCH facility that provides PMTCT services are tested for HIV-2. About 93 percent of women who test positive for HIV and 73 percent of exposed infants receive ARV prophylaxis.

Challenges to universal coverage of ARV prophylaxis include women's lack of knowledge about the benefits of ARVs in preventing HIV transmission to their children. Limited understanding of the benefits of PMTCT has also been documented among many people working in the health sector (Lugalla et al. 2008). Stigma, which is not uncommon, has a negative impact on the use of PMTCT services. Women are usually the first of the two partners in a couple to be tested for HIV. If they are found to be HIV positive, their partners often blame them for introducing HIV into the relationship. As a consequence of HIV-related stigma, women may experience violence, loss of shelter and economic support, and exclusion from their family and community. Women may choose to keep their HIV status a secret out of fear of social stigma; abandonment by family, friends, and community; and extreme feelings of isolation and loneliness, as well as the perceived and very real threat of violence. The fear of knowing and eventually disclosing their HIV status deters women

from seeking PMTCT services and results in poor adherence to PMTCT interventions, especially safer infant feeding decisions, adherence to ARV medication, use of condoms and FP, and delivery at health care facilities.

The Jane Goodall Institute (JGI), a nongovernmental organization that works in natural resources and wildlife conservation in Kigoma, is one of five natural resource management and economic growth (NRM/EG) partners receiving funding from the United States President's Emergency Plan for AIDS Relief (PEPFAR) in Tanzania. JGI implements a community-centered conservation approach that was first developed through implementation of the TACARE project, which began in 1994 in recognition of the basic link between the loss of the area's forests and the socioeconomic development needs of local communities. Based on a rapid assessment of local needs, three pressing health issues were identified: cervical cancer, the availability of FP services, and HIV. To address cervical cancer, JGI piloted a cervical cancer screening project in Kigoma that is now being implemented at the national level. To increase access to FP, JGI trained CHWs to provide FP services and referrals at the community level. To address HIV, JGI collaborated with the MOHSW and the Gombe-Masito-Ugalla conservation program to mainstream HIV into its NRM/EG activities in 26 villages in Kigoma Rural District, and is currently expanding these services to an additional 23 villages in Kigoma Rural and Mpanda Districts. While supporting JGI to mainstream HIV in its NRM/EG activities in Kigoma, the AIDSTAR-One project noted that PMTCT services established in static health facilities were not being fully utilized by communities and that the CHWs trained by JGI in FP and home-based care (HBC) were available, but were not being used to support PMTCT services.

In early 2012, AIDSTAR-One worked with JGI, the Kigoma Local Government Authority, and the MOHSW to pilot a six-month community PMTCT demonstration project in 10 villages in Kigoma Rural District to implement the national four-pronged PMTCT approach. The project used voluntary CHWs to provide FP services for HIV-affected households; deliver HIV risk reduction messaging; refer pregnant women for HIV testing, PMTCT, and HIV treatment; and provide HBC for HIV-affected households.

STUDY OBJECTIVES AND IMPLEMENTATION

The objectives of the community PMTCT demonstration project were to identify an effective model for:

- Increasing access to and uptake of PMTCT services among remote communities
- Strengthening community linkages to facility-based PMTCT services to ensure a continuum of care in remote communities
- Improving the competency and motivation of CHWs.

STUDY DESIGN

To determine the most effective model for strengthening the community aspect of the PMTCT program in Kigoma Rural District, AIDSTAR-One used a quasi-experimental design in which 10 similar primary health facilities or dispensaries were selected. Under the TACARE project (1994–1999), 26 primary health facilities or dispensaries and health centers in Kigoma Rural District received support, for the first time, to provide community-based health services. TACARE support included recruitment of up to five lay community members and training, initially to serve as CBDAs who promoted and distributed nonprescription FP methods; later, the same team was trained to provide home-based HIV care and support to people living with HIV. Performance by the CHWs had declined since 1999, when the TACARE project ended its support in terms of supervision, supplies, and refresher training.

The Kigoma demonstration project randomly selected 10 dispensaries (in Mkongolo, Bubango, Mgalaganza, Kaseke, Kasuku, Kalinzi, Mwakizega, Chegu, Mtegowanoti, and Mganza), leaving aside the health centers that were not similar. Of the 10 dispensaries, 3 (Chegu, Mtegowanoti, and Mganza) were randomly selected as control sites, and the remaining 7 were designated as intervention sites. Next, the CHWs and their supervisors from the seven intervention sites were provided a three-day orientation on PMTCT at Kihinga Folk Development College. The PMTCT orientation included training on HIV risk reduction messaging, the benefits of exclusive breastfeeding, HIV testing, male involvement, and referral of pregnant women to dispensaries for HIV testing and antiretroviral therapy (ART). The training was provided by resource people from the Office of the District Medical Officer and officially closed by the District Medical Officer; materials were based on an MOHSW-approved curriculum, a facilitator's guide from the mothers2mothers program for women living with HIV, and other resources produced by the Centre for Counselling, Nutrition, and Health Care (a Tanzanian organization), the United Nations Children's Fund, and the Joint United Nations Programme on HIV/AIDS. Besides the training, AIDSTAR-One provided the CHWs from the intervention sites with gear to support their community work: bicycles, mobile phones and solar chargers, reporting forms, and carrying bags. A total of 17 male and 15 female CHWs received the training and support. The control sites were similar to the intervention sites in terms of geography, population size, and presence of CHWs, but

the CHWs in those sites (three men and four women) did not receive training or commodities to support their work.

METHODS AND DATA COLLECTION

Seventeen indicators were selected for monitoring project performance (see Box 1). The first five indicators were reported monthly by the CHWs in all sites, including the control sites. Data for the other 12 indicators were collected prospectively over a period of 6 months from the registries kept by the dispensaries. Baseline data for monitoring project performance for the health facility service statistics was not complete for all the indicators from the 10 sites for March 2012. To mitigate this challenge, a baseline was constructed using retrospective data. Monthly totals for the facility-based indicators were collected from all sites for January, February, and March 2012, and an average was calculated for each indicator per site as a baseline.

The intervention commenced in April 2012. Every month, trained CHWs were supervised by a team composed of staff from JGI and the District Medical Office. During the monthly supervision visits, data on project indicators were collected from health facilities and the CHWs. At the end of six months, qualitative information was collected by JGI, MOHSW, and AIDSTAR-One staff through interviews conducted with health care providers from 7 health facilities, 14 CHWs, and 28 women who received services from the CHWs and health facilities to explore their perceptions of and experiences with the PMTCT service. The data analysis compared trends in service use between the control and intervention sites for 11 out of 17 indicators for which data were available for the six months of project implementation, and interpreted the trends with the supplementary qualitative information collected at the end. The data collection form appears in Appendix 2.

Box 1. Indicators for the Community PMTCT Demonstration Project

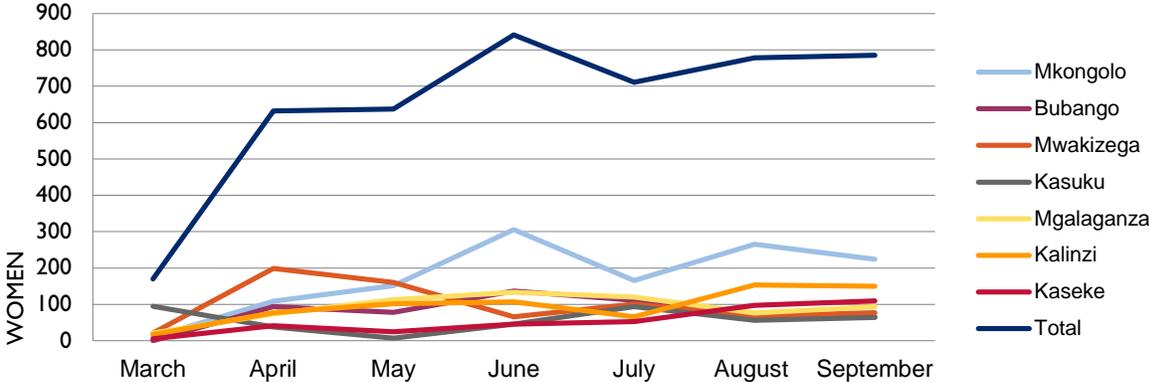
1. Women reached with FP messages
2. Women receiving male condoms
3. Women receiving pills
4. Women reached with health education messages, including FP
5. Referrals made to the dispensary for FP and HIV care
6. Women attending ANC
7. Male condoms dispensed
8. Cycles of FP pills dispensed
9. FP injections provided
10. Women receiving an intrauterine device (IUD)
11. Referrals for vasectomy
12. Referrals for tubal ligation
13. Pregnant women tested for HIV during RCH services
14. Pregnant women testing positive for HIV
15. Deliveries at a health facility
16. HIV-positive infants provided with ARV (Nevirapine)
17. Women counseled on six months of exclusive breastfeeding after delivery

FINDINGS

NUMBER OF WOMEN REACHED BY COMMUNITY HEALTH WORKERS WITH MESSAGES ON FAMILY PLANNING

Contraception is a primary strategy for preventing HIV transmission from mother to child. Effective contraception prevents unwanted pregnancy and thus reduces the risk of transmission of HIV to the infant during pregnancy, delivery, and breastfeeding (and the need for expenditures on treatment). CHWs were trained to deliver HIV risk reduction messages and FP education to small groups of men and women or to individuals at their homesteads. Between three and five CHWs per health facility were trained by the demonstration project in the seven intervention sites to promote PMTCT. Each CHW reported on the number of women reached per month with FP messages. The sum of women reached by all CHWs per health facility for the six months of the project is presented in Figure 1. The results show that the total number of women reported to have received FP messages increased from around 200 at baseline to a peak of 800 in June, August, and September 2012. A maximum of about 300 women were reached monthly at each site with FP messages (e.g., the benefits of condom use or oral contraceptives), with the greatest increase at the Mkongolo dispensary from May to September. There are no records of the number of women reached at the control sites because CHWs trained under TACARE were either inactive or not reporting after the TACARE project ended in 1999.

Figure 1. Number of Women Reached with FP Messages from CHWs in Intervention Sites



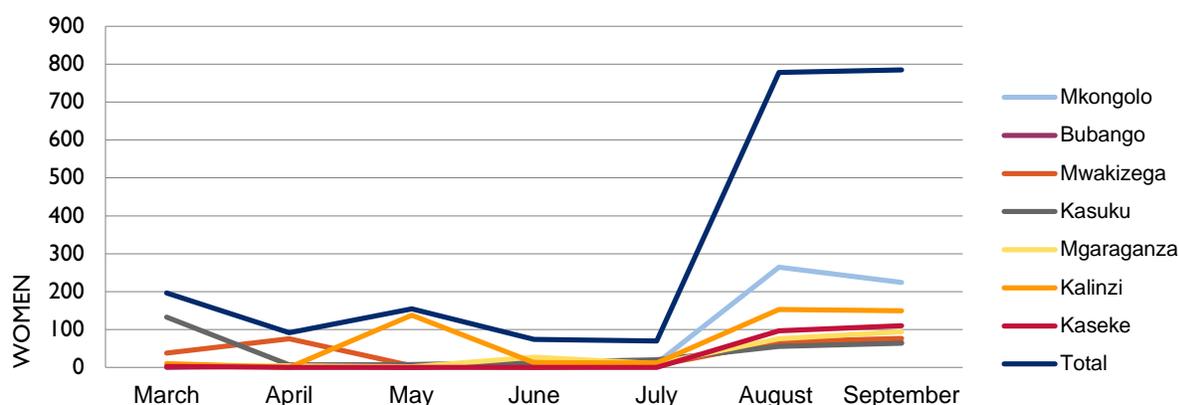
PROMOTION OF MALE CONDOMS FOR FAMILY PLANNING AND HIV PREVENTION

Condoms (male and female) provide dual protection against HIV and unwanted pregnancy. As part of a comprehensive PMTCT strategy, condoms are promoted and distributed by CHWs without prescription. Condoms (mostly male) are also available from public health facilities for FP and HIV

prevention, provided through the District Medical Office. In case of a shortage of transport, health care providers can make collections at the district level.

The number of women who received condoms from CHWs was reported monthly for each CHW and added to get a monthly health facility total. The total number of women who received condoms from CHWs for the six months of the project’s duration (again, available for the intervention sites only) increased sharply from about 100 in July to 800 in August 2012 (see Figure 2). This increase appears to correspond to the availability of supplies, which became available in July, although the CHWs had been active before that month. The Mkongolo dispensary recorded the highest number: about 250 per month in August and September 2012.

Figure 2. Number of Women Who Received Male Condoms from CHWs in Intervention Sites

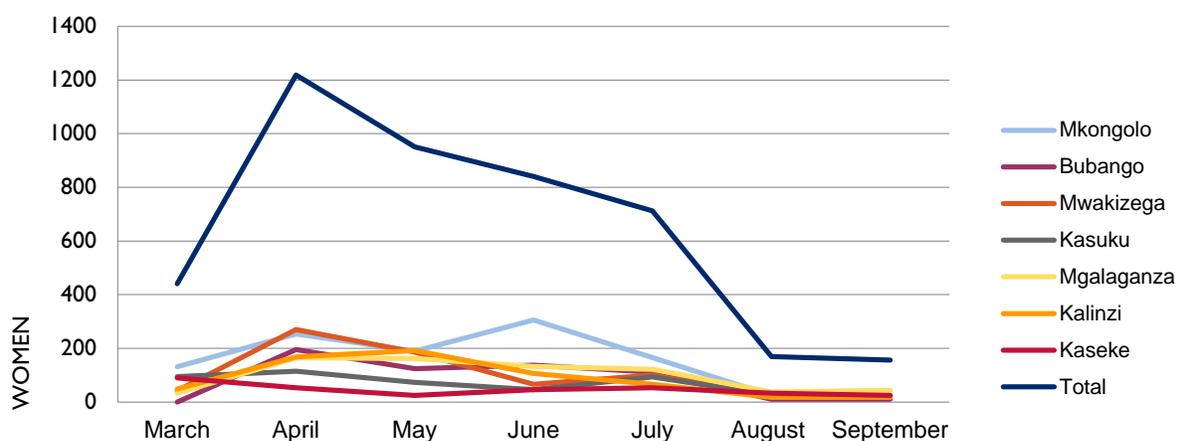


DELIVERY OF HEALTH EDUCATION MESSAGES BY COMMUNITY HEALTH WORKERS

HIV risk reduction messaging is key to the primary prevention of MTCT of HIV. CHWs were trained to speak with pregnant women on HIV risk reduction strategies, such as reduction of sexual partners, condom use, FP, and the benefits of voluntary counseling and testing (VCT) as a gateway for the HIV care and treatment services provided from seven RCH intervention clinics. Each trained CHW reported the number of women reached with health education messages for each month, which was summed up to get the total for each health facility per month. The number of women reached with health education messages is presented in Figure 3.

The total number of women reached with health education messages in the intervention sites peaked at 1,200 in April 2012, which was immediately after the training, and steadily declined to about 200 in August and September 2012. This decline appears to have occurred because CHWs lacked supplies, especially HIV test kits. The Mkongolo facility reached its highest peak of 300 women in June and declined to almost 0 in the months of August and September with the other dispensaries. No comparison data were reported from the control sites because CHWs in the control sites were either inactive or not reporting.

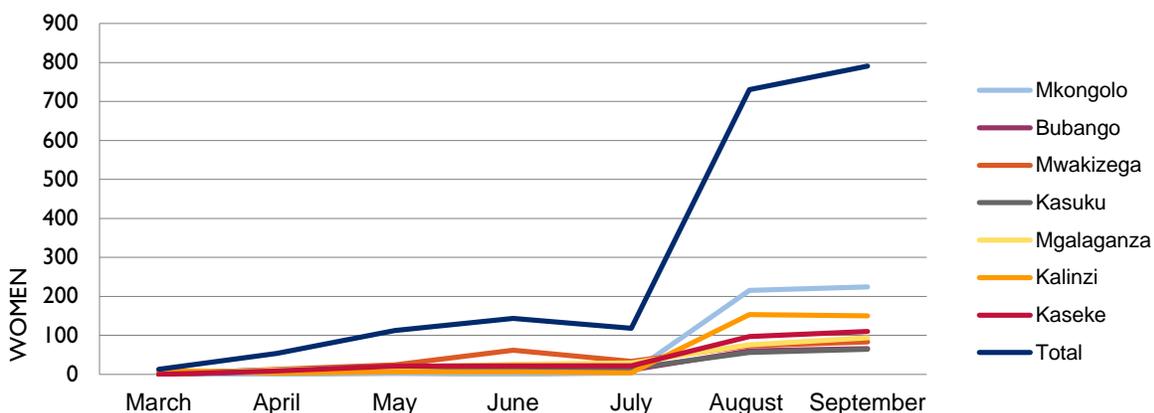
Figure 3. Number of Women Reached with Health Education Messages from CHWs in Interventions Sites



EFFECTIVE REFERRALS BY COMMUNITY HEALTH WORKERS

Besides giving HIV risk reduction messages, CHWs also referred pregnant women to the dispensaries for HIV testing and ARV treatment for women and infants testing positive for HIV. CHWs used MOHSW referral forms when available or wrote a note to the health care providers as reference for their clients. After attending the pregnant woman, the service provider signed the stub of the referral form and gave it to the woman, who returned it to the CHW as proof that the referral was effected. The number of effective referrals from each CHW was added for each dispensary for each month (see Figure 4). The results show that the number of effective referrals in all intervention sites increased over the six-month period, from 0 at baseline to 800 per month in September 2012. The trend was similar for all sites, with the highest increase in the last two months of August and September 2012.

Figure 4. Number of Effective Referrals by CHWs in Intervention Sites



ANTENATAL CARE ATTENDANCE

PMTCT services are integrated within the reproductive health units of health facilities where pregnant women are attended during pregnancy (though they are tied to the availability of HIV test kits). ANC attendance presents a great opportunity for pregnant women to know their HIV status and take appropriate actions to prevent MTCT. The MOHSW has an established system of recording every pregnant woman attending the clinic in the ANC register. The register is maintained by the provider at the RCH unit and is used for compiling reports for the health facility and at higher levels of the health system. The PMTCT demonstration project reviewed PMTCT registers to record the number of pregnant women who attended antenatal clinics in the 10 sites during the project's six-month duration. The results are presented for the intervention and control sites in Figures 5 and 6, respectively.

Figure 5. Number of Women Who Attended ANC in Intervention Sites

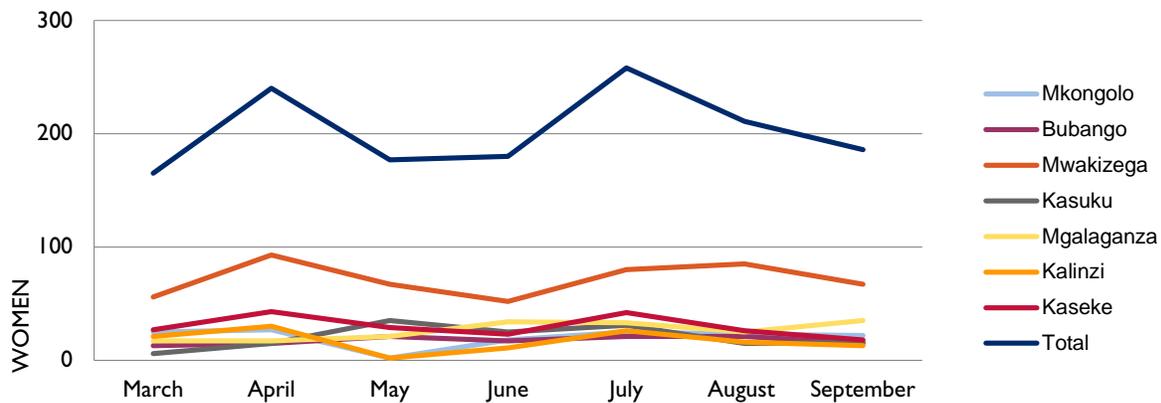
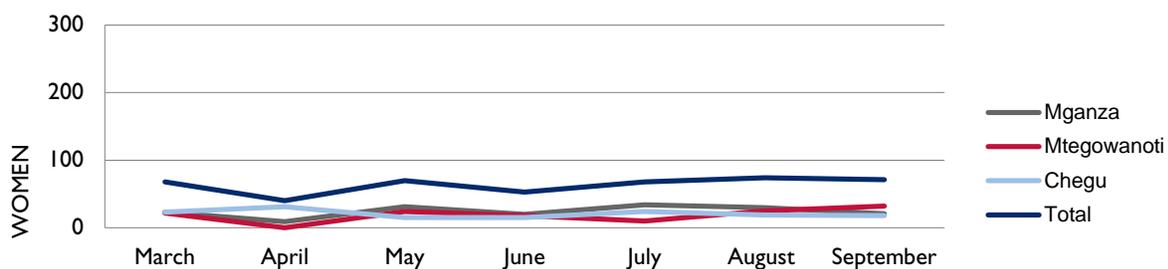


Figure 6. Number of Women Who Attended ANC in Control Sites



The total number of pregnant women attended by the clinics in the intervention sites increased from 150 at baseline to a peak of about 240 in April and to a second peak of 250 in July. Individual sites recorded very few pregnant women receiving ANC (less than 50 pregnant women per month), except for the Mwakizega dispensary, which recorded between 50 and 90 pregnant women receiving ANC every month throughout the project. The picture in the control sites is quite the opposite (see Figure 6), probably because the CHWs in those sites did not carry out promotion activities. The total number of pregnant women shows a declining trend, varying between 70 at baseline to 0 in August and September 2012. The Mtegowanoti dispensary had a drop from 20 women at baseline to

0 in April and peak of about 25 women in May, and a steady decline to 0 in August and September 2012. The Chegu and Mganza dispensaries also display a decline from about 25 women at baseline to 0 in August and September 2012.

WOMEN RECEIVING MALE CONDOMS FROM DISPENSARIES

CHWs and health care providers in health facilities provide condoms for FP and HIV prevention. CHWs promote condoms as a measure of HIV prevention and unwanted pregnancy among women at the community level. HIV-positive mothers are also advised to use condoms to prevent infection of partners and reinfection with HIV. CHWs themselves distribute condoms or refer clients to the dispensaries in case of a shortage. The total number of condoms distributed by a dispensary is the sum of health facility and CHWs distributions. Condoms dispensed from dispensaries are recorded in RH registers maintained at health facilities. The number of women who were provided condoms from the 10 dispensaries for the six months of the demonstration project are presented in Figures 7 and 8.

Figure 7. Number of Women Who Received Condoms from Dispensaries in Intervention Sites

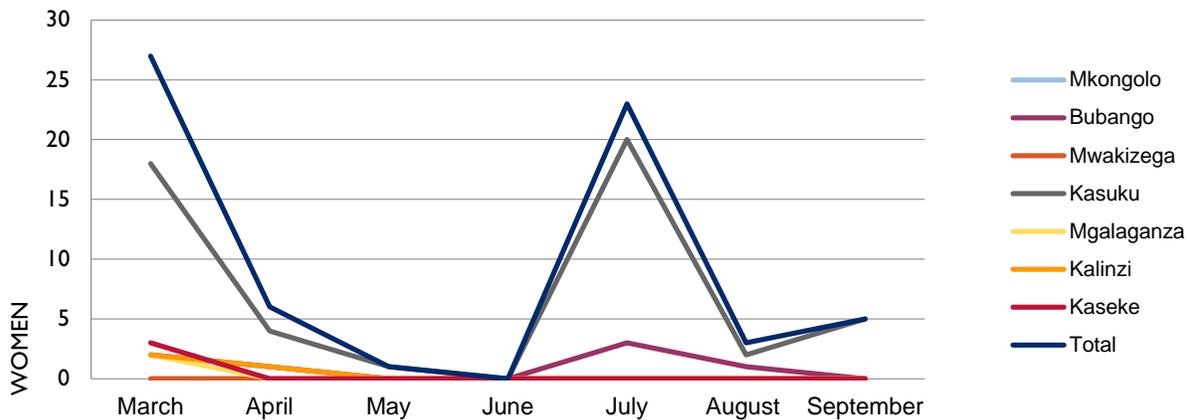
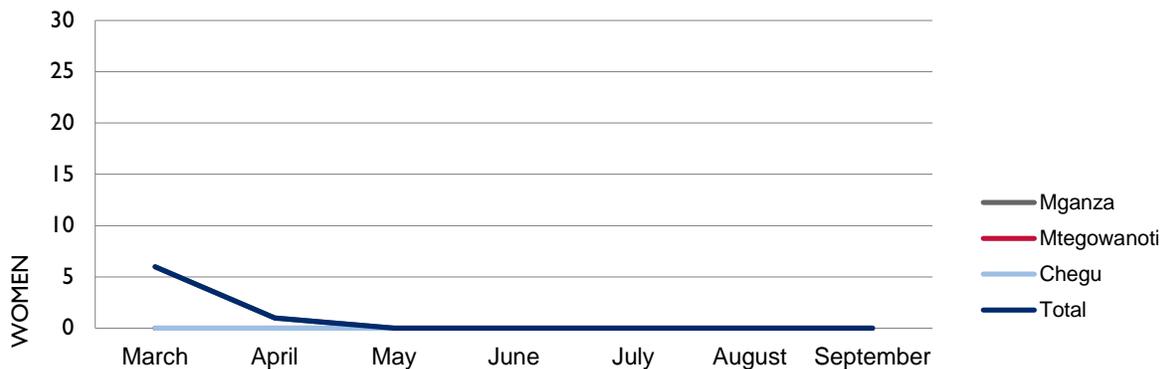


Figure 8. Number of Women Who Received Male Condoms from Dispensaries in Control Sites



As shown, very few women (less than 30 per site per month) received condoms from dispensaries in either the intervention or control sites. The total number of women who received condoms from health facilities declined from April to May in both sites. From May to September 2012, no women received condoms from dispensaries in the control sites. In the intervention sites, an increase in the number of women receiving condoms started in June, reached a peak of 22 condoms in July, and declined again after July. The increase in condom use reflected the availability of condom supplies, which improved in June, July, and August.

NUMBER OF WOMEN RECEIVING ORAL CONTRACEPTIVE PILLS FROM COMMUNITY HEALTH WORKERS

Contraception is a PMTCT primary prevention strategy. Prevention of pregnancy among HIV-positive women also prevents the transmission of HIV from mother to child. The use of condoms among HIV-positive women prevents reinfection from infected partners and the spread of new HIV infections. Like male condoms, oral contraceptive pills are provided by CHWs and providers at health facilities. In health facilities, women receiving oral contraception from either CHWs or health care providers at facilities are recorded in the RH register. Figures 9 and 10 present the number of women who received pills from the participating dispensaries.

Figure 9. Number of Women Who Received Oral Pills from CHWs in Intervention Sites

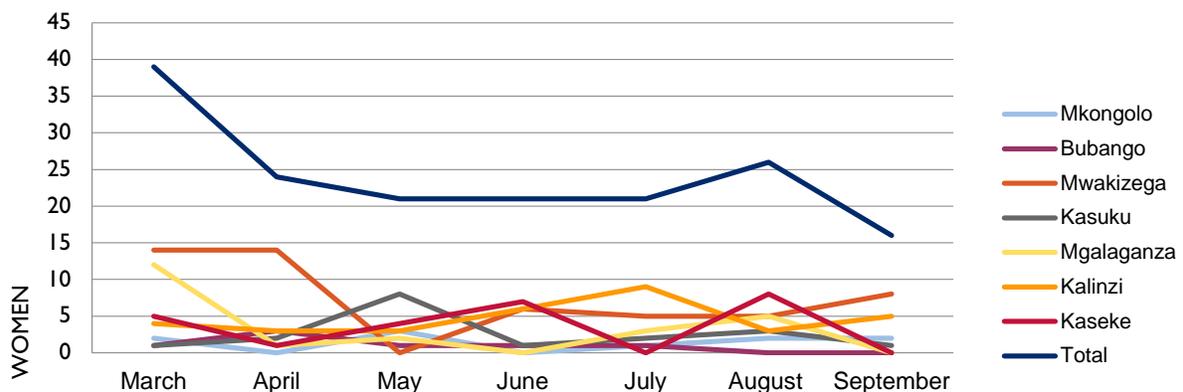
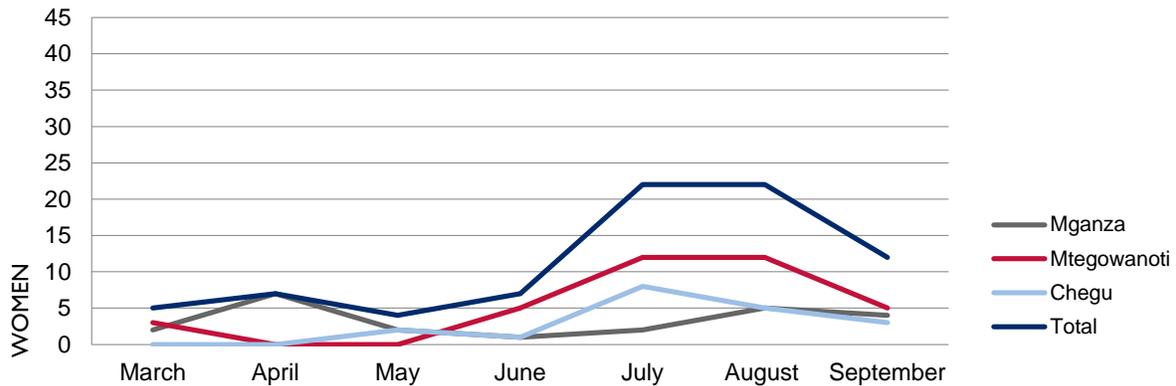


Figure 10. Number of Women Who Received Oral Pills from CHWs in Control Sites



The total number of women who received oral pills in the intervention sites declined from about 40 at baseline to 25 at the end of the demonstration project. The reason for the decline may have been concerns about the side effects of oral pills, and women may have been less motivated to take a daily pill when the injectable provided protection for a longer period with a single dose. In the control sites the total number of women who received oral pills increased from 5 at baseline to a maximum of 22 in July and August and then declined to 12 in September 2012.

NUMBER OF WOMEN WHO RECEIVED MEDROXYPROGESTERONE INJECTIONS FOR FAMILY PLANNING

CHWs are allowed to provide condoms and pills. FP injections (Medroxyprogesterone) are provided by trained health care providers in the dispensaries. The number of women receiving FP injections is recorded in the RH register. Figures 11 and 12 track the number of women who received injectable contraceptives.

Figure 11. Number of Women Who Received FP Injections from Intervention Sites

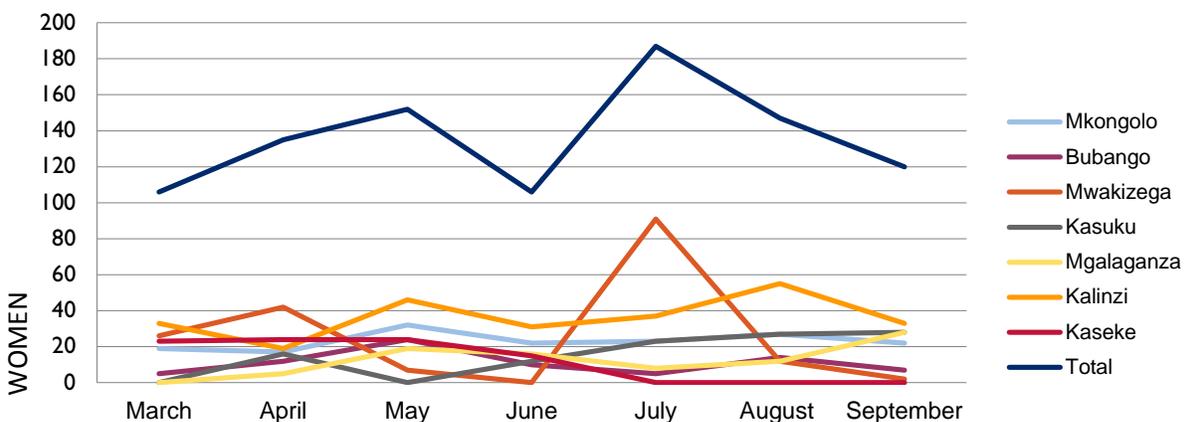
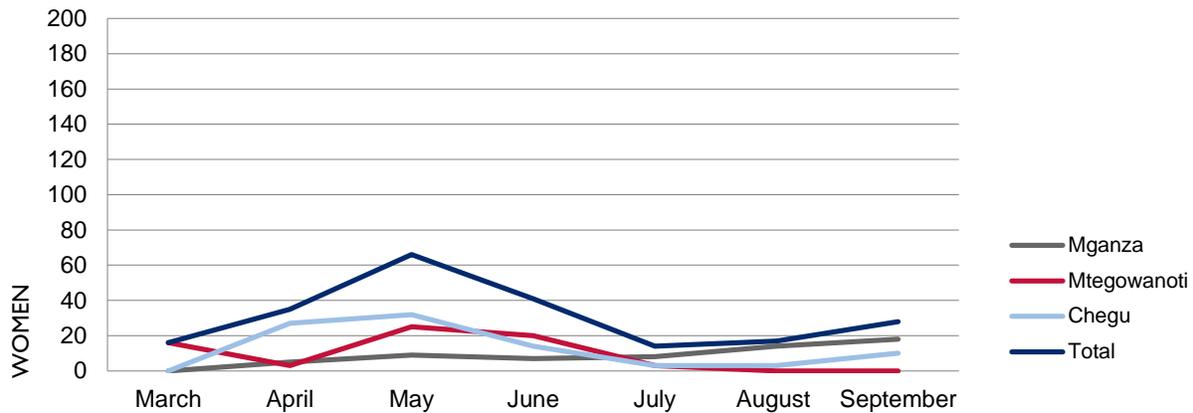


Figure 12. Number of Women Who Received FP Injections from Control Sites



The total number of women who received FP injections in the intervention sites displays an increasing trend with two troughs in June and September 2012. Except for the Mwakizega dispensary, individual dispensaries had slight monthly increases, reaching a maximum of about 40 women each month. The number of FP injections at the Mwakizega dispensary had a maximum increase of about 90 in July 2012. In the three control sites, the total number of women who received FP injections increased from 15 at baseline to 65 in May, and steadily declined to about 15 in August before rising to 29 in September 2012. Most FP injections were provided by the Chegu (April and May) and Mtegowanoti dispensaries in May and April 2012. All sites provided FP injections to fewer than 30 women per month from April to September 2012.

NUMBER OF WOMEN WHO DELIVERED IN HEALTH FACILITIES

The RCH units of health facilities provide both ante- and postnatal services. The other unit is the labor ward where deliveries are conducted and recorded. During the demonstration project, an effort was made to collect the statistics on the number of women attending ANC, testing for HIV, and testing positive and on how many infants and mothers were put under ART care. Because HIV test kits were not available at any of the sites (despite plans to provide them) during the demonstration project, it was not possible to collect data on HIV testing and ART care. Thus, Figures 13 and 14 present only the number of pregnant women who delivered in the intervention and control sites, respectively, over the six months.

Figure 13. Number of Pregnant Women Who Delivered at a Health Facility in the Intervention Sites

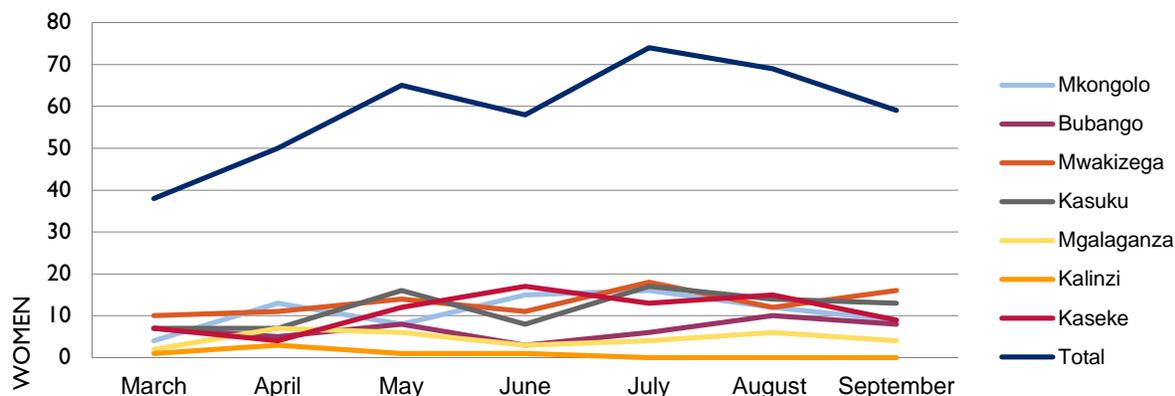
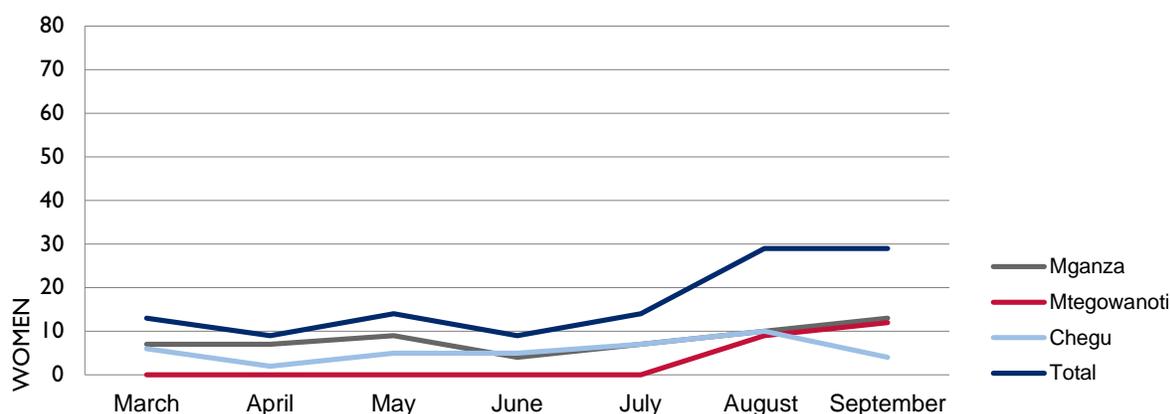


Figure 14. Number of Pregnant Women Who Delivered at a Health Facility in the Control Sites



The total number of pregnant women who delivered in the dispensaries in both the control and intervention sites increased overall. The total number of deliveries at facilities increased from 40 at baseline to 65 and 72 women in May and July, respectively, and declined to 60 in September 2012. Per-site delivery totals increased in all facilities except for Kalinzi, though at low levels of between four to 15 women per site per month. In the control sites the increase in deliveries began in July, and most deliveries occurred at the Chegu and Mganza dispensaries. The Mtegowanoti dispensary conducted deliveries for the months of August and September only. This was likely affected by the availability of providers and supplies. The Kigoma Local Government Authority estimates that about 47 percent of deliveries take place in health facilities in the region.

NUMBER OF WOMEN WHO DELIVERED AND WERE COUNSELED ON EXCLUSIVE BREASTFEEDING

Exclusive breastfeeding for a maximum of six months is a recommended practice regardless of the mother’s serostatus, because colostrum available in the mother’s milk provides MTCT protection. With the integration of PMTCT into RCH services, all women counseled on exclusive breastfeeding (EBF) are recorded in a register maintained by the health facility. Figures 15 and 16 present information on the number of women who gave birth at facilities and received EBF counseling.

Figure 15. Number of Pregnant Women Who Delivered and Received EBF Counseling in Intervention Sites

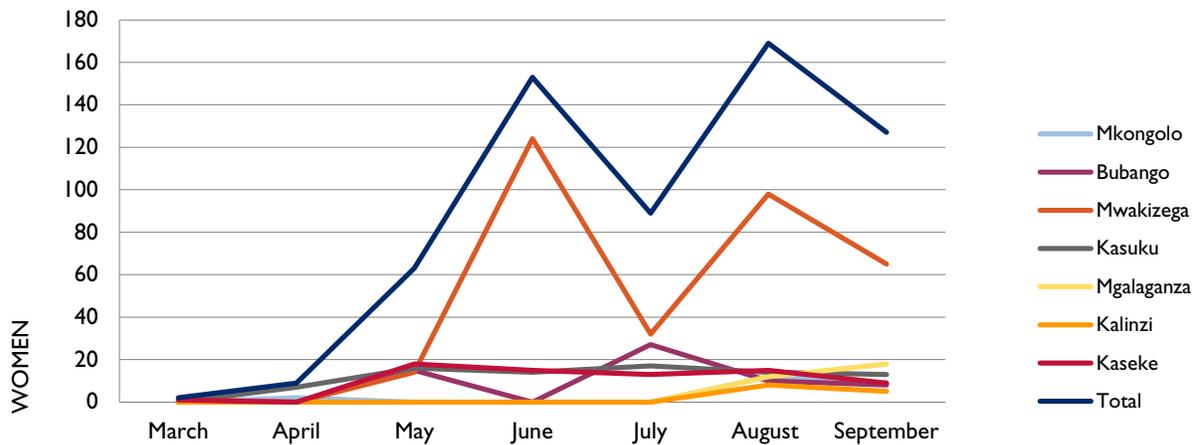
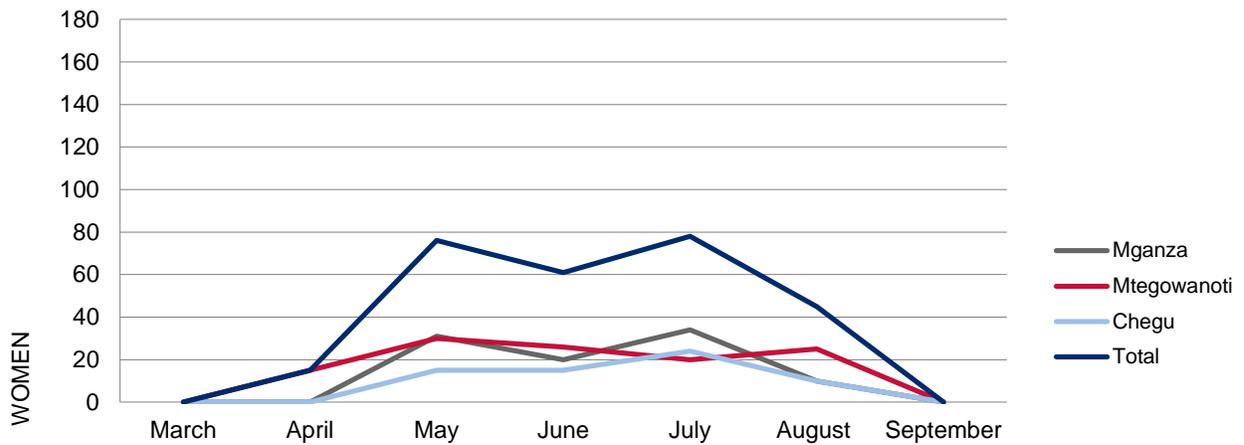


Figure 16. Number of Pregnant Women Who Delivered and Received EBF Counseling in Control Sites



The total number of women who were counseled on EBF shows an increasing trend, with two peaks of over 140 in June and over 160 in August, before declining to about 125 in September. The Mwakizega dispensary contributed most of the EBF counseling. These numbers are much higher than the number of deliveries recorded in the same dispensaries during the reference period, which suggests either under-reporting of deliveries or counseling of women who did not deliver in the respective health facilities. In the control sites the total number of women who received EBF counseling peaked at about 80 in July before declining to 0 in September for the three sites.

IMPLEMENTATION CHALLENGES

The study was confronted by many challenges that affected the results.

SAMPLE SIZES FOR INTERVENTION AND CONTROL SITES

The Kigoma demonstration project was based on 10 sites (7 intervention and 3 controls). The intervention sites are over-represented, which compromises direct comparison between the sites.

TIMEFRAME

The project's six-month duration did not allow enough time to determine the impact of the activities.

DATA QUALITY

Five out of the seventeen indicators used to monitor performance of the PMTCT demonstration project were self-reported by the CHWs. Data for the other 12 indicators were collected from registers maintained by the study sites. CHWs were discouraged from exaggerating their results during training, but this would not totally rule out the possibility. Also, the data from health facility records were incomplete in many cases, because some clients attended but their cases were not recorded.

AVAILABILITY OF HIV TEST KITS AND SUPPLIES

The Kigoma PMTCT demonstration project was implemented within the natural conditions of the Tanzanian health system. Project interventions focused on supporting CHWs and did not address health system issues such as the supply of HIV test kits, which were in shortage in all sites throughout the project's duration. Consequently, the women referred by the CHWs could not test for HIV, and some providers stopped counseling about PMTCT because testing kits were not available. This made it impossible to report the effect of CHWs' counseling on HIV, and strongly suggests the need to include logistical considerations within HIV initiatives in low-resource settings.

AVAILABILITY OF REPORTING FORMS

The project sought to ensure that MOHSW reporting forms were photocopied and supplied to the trained CHWs. In some cases, shortages were reported, and data were collected in notebooks maintained by the CHWs.

DISCUSSION

The Kigoma PMTCT demonstration project was implemented to identify an effective model for increasing access to and uptake of PMTCT services among remote communities; strengthening community linkages to facility-based PMTCT services to ensure a continuum of care in remote communities and improving competency; and motivating CHWs. Findings included the following:

EFFECTIVENESS OF COMMUNITY HEALTH WORKERS IN MOBILIZING PREGNANT WOMEN TO USE PREVENTION OF MOTHER-TO-CHILD TRANSMISSION SERVICES

CHWs in the demonstration project were trained on PMTCT and provided basic supplies to support them to reach out to pregnant women and mobilize them to use PMTCT services provided from static health facilities. In follow-up discussions with CHWs and their supervisors in the health facilities, the study explored whether CHWs experienced any challenges in responding to questions from their clientele. All CHWs (including both men and women) reported to have enjoyed the community's trust and responded competently to client questions—despite local logistical challenges.

“We are trusted because we were introduced by village government as CBDAs and HBC before the PMTCT project. The trust created has been extended to the PMTCT project. Women receive PMTCT counseling positively but Mgalaganza dispensary does not conduct HIV testing since we received training. I provided seven referrals but the women did not go because the dispensary does not have test kits.”

—CHW, Mgalaganza Dispensary

“We commend the organization which trained the CHWs on PMTCT. Since then there has been an increase. We used to have 20 to 30 pregnant women coming to the health facility for testing. Since April 2012 there has been an increase by month; April 41, May 30, June 26, July 42, August 28, September 17. Part of the total of 193 from April to September can reasonably be attributed to CHW's activity.”

—Supervisor, Kaseke Dispensary

The interviews with CHWs explored factors that motivate them to continue with the voluntary work in the community. Among the reasons, training was often mentioned. Other reasons are commitment to serving the community, community appreciation, continued learning through refresher trainings, and the material support that the project provided, which helped CHWs to carry out community activities more effectively. One way to address this would be to ensure that refresher training is provided routinely, not only to maintain or build skills but also to keep motivation high among volunteer workers.

STRENGTHENING THE CONTINUUM OF CARE

The Kigoma demonstration project also proved to be a successful model for linking the health facility and the community in the continuum of care. Trained CHWs successfully identified women in the community, counseled them, and referred them to their respective health facilities, which complemented the work of the facility-based supervisors. One supervisor said:

“After CHWs training more women have responded because they have reached women in the community who are not easily reached by health workers. They have access and more time for counseling. In our position we only meet those who come to the clinic. Also because of workload and shortage of staff we cannot go into the community to mobilize women. It is true after the training there has been an increase.”

—Supervisor, Kaseke Dispensary

INCREASING USE OF PREVENTION OF MOTHER-TO-CHILD TRANSMISSION SERVICES

ANC attendance increased from baseline, which shows the impact of trained CHWs on service use. Training and supporting CHWs clearly contributed to increased use of PMTCT services. However, logistical problems (which the project did not address) impeded full use of PMTCT services.

The project was implemented in a natural setting of the Tanzania health system. Test kits were not introduced in the system in case of a shortage, which turned out to be an oversight, because there was in fact a shortage. The situation is summarized by one service provider;

“We use SD bioline as first [line] and Determine HIV test kits as second line for HIV testing at the PMTCT. Test kits are not in the essential drug kit and DACC does not deliver to the dispensary. We usually collect from the district and for about one year test kits have [consistently] been out of stock. Consequently, between Nov 2011 to October 2012 PMTCT services have not been provided because HIV test kits are not available. We have even stopped counseling pregnant women because you cannot give reference to other facilities because the situation is much the same and to the woman it is a waste of her time.”

—Provider, Mgalaganza Dispensary

RECOMMENDATIONS

Although the Kigoma demonstration project achieved measurable changes in improving CHWs' ability to link eligible women to facilities for PMTCT care, the prevailing shortage of HIV test kits undermined the project's capacity to demonstrate results. Findings and the logistical limitations suggest the following recommendations:

- *Where possible, engage and train CHWs or other outreach workers who are known to the community.* Because they know, and are known in, their communities, CHWs (including men and women) can engage women who would otherwise be beyond the reach of clinicians—a particularly vital consideration in remote communities. Also, trust in the CHWs can contribute to increased use of PMTCT services.
- *Include logistical considerations in project design.* A demonstration project in a resource-limited environment such as Tanzania should consider the supply side: supporting the health system to provide adequate supplies, including HIV test kits, during project implementation to enhance the potential to demonstrate results.
- *Focus on strengthening the supply chain.* PMTCT services remain under-utilized in Kigoma Region, and the project has created a community-level human resource that can encourage women and their partners to use these services. The Office of the District Medical Officer should collaborate with development partners to resolve the perpetual shortage of expendable supplies, especially HIV test kits, to enable trained CHWs to perform effectively.
- *Engage district-level authorities to ensure sustainability.* The DHMT is responsible for management oversight of health services in a district. Future efforts should ensure that authorities at the district level are involved with and budgeted for project planning and oversight. Without support, including adequate supervision, trained CHWs may become less effective after the demonstration project ends. Integrating the supervision of CHWs into district-level budgets will help to sustain PMTCT community services in Kigoma.
- *Continue supporting collaboration between CHWs and facilities.* Dispensaries provide the first level of support and supportive supervision of trained CHWs. The Kigoma DHMT should explore mechanisms of fostering closer collaboration between trained CHWs and dispensaries to ensure a sustained community PMTCT service.
- A strategy that includes CHWs should not only offer training and periodic refreshers to maintain knowledge and foster skills development but should also provide supplies (e.g., solar phones, solar chargers, bicycles, gum boots, reporting forms, and umbrellas) to facilitate their community work. In the absence of monetary remuneration, these can also serve as incentives for the CHWs and can contribute to maintaining their motivation.

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APPENDIX I

COMPREHENSIVE APPROACHES TO PREVENTION OF MOTHER- TO-CHILD TRANSMISSION OF HIV

PRIMARY PREVENTION OF HIV TRANSMISSION FROM MOTHER TO CHILD (MOHSW 2008)

Without a cure for HIV, primary prevention of HIV among women and their partners is considered the most effective means to control the spread of HIV and minimize its impact on individuals, families, and communities. Preventing HIV infection in women of childbearing age is the best way to prevent MTCT. In operational terms, primary prevention is promoted by:

- Encouraging sexually active women and men to use safer sex practices including barrier methods such as condom use, to reduce the number of sexual partners, and to stay faithful to their sexual partner
- Health care workers at RCH clinics ensuring that HIV testing and counseling is integrated and offered to all women of childbearing age, their partners, and their children
- Gender concerns and equality are considered when offering PMTCT services
- All health care providers emphasize the early diagnosis and treatment of sexually transmitted infections (STIs) in their practice

PREVENTION OF UNINTENDED PREGNANCIES AMONG WOMEN INFECTED WITH HIV

FP is part of a comprehensive public health strategy to prevent MTCT. All women living with HIV and their partners should receive FP counseling and should be empowered to access and use effective contraceptive methods to avoid unintended pregnancies. A woman's/couple's choice of contraceptive methods should be based on her health status and personal preference. The FP option of her/their choice should be provided on-site or, when the chosen method is not available, through referral to the nearest facility. In operational terms:

- Couples/women living with HIV should be empowered to make informed decisions on the method of choice for FP.
- Dual protection is the recommended form of contraception for couples/women living with HIV.
- All pregnant women and their partners (HIV positive or negative) should be encouraged to use condoms during pregnancy to prevent STIs and HIV infection or reinfection.
- Every woman living with HIV who intends to stop use of contraceptives and become pregnant should be provided with adequate counseling on PMTCT.

INTERVENTIONS TO PREVENT HIV TRANSMISSION FROM MOTHERS TO THEIR INFANTS

The PMTCT program offers a range of services and interventions that reduce the risk of MTCT. These include routine HIV education, testing and counseling for pregnant women and their partners, ART and prophylaxis, safer delivery practices, and counseling on safer infant feeding and care of the HIV-exposed infant. These interventions are discussed in detail in the PMTCT guidelines.

TREATMENT, CARE, AND SUPPORT FOR HIV-POSITIVE WOMEN AND THEIR FAMILIES

Providing HIV treatment, care, and support is critical for enabling women living with HIV to address their health needs and to ensure the well-being of their children and families. The PMTCT program should strive to provide comprehensive HIV care and treatment services, and when this cannot be provided in RCH clinics, it is important to strengthen coordinated referral systems to ensure that women and their families have access to comprehensive HIV care services at appropriate clinics.

All women diagnosed with HIV infection should have clinical and immunological evaluation to assess their eligibility to receive ART. Care and treatment services to pregnant women living with HIV should be provided in RCH settings, or by referral when care and treatment services cannot be provided in RCH clinics.

The 2008 Tanzanian national PMTCT guidelines recommend 14 PMTCT services, including routine HIV testing and counseling, ARV treatment and prophylaxis for mothers and children, safer delivery practices, counseling and support for safer infant feeding practices, long-term follow-up care for mother and child, and FP services.

The guidelines further stipulate that all women of reproductive age should receive HIV counseling and testing as a routine procedure when accessing RCH services, and that all pregnant women should receive pre-HIV test information at their first antenatal visit or as soon as possible thereafter. The diagnosis of HIV-2 infection in adults is established by detecting HIV antibodies using simple rapid tests according to the national HIV rapid testing algorithm. PMTCT services are implemented to provide the following benefits:

- PMTCT of HIV through the use of ART and ARV prophylaxis for HIV-positive women and HIV-exposed infants
- Strengthened ANC, safe delivery practices, and counseling and support for safer infant feeding practices
- Linkage of mothers (and other household members) living with HIV to care, treatment, and support services, thereby prolonging their lives and enhancing the survival of their children
- Follow-up of HIV-exposed infants to monitor their health and HIV status; prophylaxis, treatment, or both for opportunistic infections; and linkage to care, support, and treatment

- Establishment of a non-stigmatizing entry point for HIV and AIDS information (i.e., primary prevention), as well as counseling and testing for women and their partners, families, and communities
- Establishment of an entry point for FP services to help women and men living with HIV make informed reproductive choices.

APPENDIX 2

DATA COLLECTION FORM AND PROJECT MONITORING INDICATORS

A. COLLECTION TOOL FROM CHWS

1. Month: _____

2. Name of CBDA/HBCP: _____

3. Name of Supervising Dispensary: _____

Sn	Indicator Description	Data Source	Monthly data/CHW
1	Number of women reached with FP messages by CBDAs	<i>Dispensary - Monthly CBDAs FP Report</i>	
2	Number of women that receive condoms by CBDAs	<i>Dispensary - Monthly CBDAs FP Report</i>	
3	Number of women that receive pills	<i>Dispensary - Monthly CBDAs FP Report</i>	
4	Number of clients reached with health education messages (FP, HIV, PMTCT) by CBDAs	<i>CBDAs - Monthly HIV CBDAs Report (Form #15)</i>	
5a	Number of effective referrals to dispensary by CBDAs	<i>Dispensary - FP Referral Forms from CBDAs, and Feedback Form to CBDAs from dispensary (Forms #7 and #8)</i>	

B. HEALTH FACILITY TOOL

1. Month: _____

2. Name of Dispensary: _____ Status: Control _____ Intervention _____

Indicator	Indicator Description	Data Source	Monthly data/site
5b	Number of effective referrals to dispensary by CBDAs for FP and HIV care (PMTCT and VCT)	<i>Dispensary - FP Referral Forms from CBDAs, and Feedback Form to CBDAs from dispensary (Forms #7 and #8) Kitabu cha HBC Geresho Namba 5</i>	
6	Number of women that enter ANC	<i>Dispensary - National ANC Register</i>	
7	Number of women that receive condoms at facility	<i>Dispensary - National RH Register</i>	
8	Number of women that receive pills at facility	<i>Dispensary - National RH Register</i>	
9	Number of women that receive injectables at facility	<i>Dispensary - National RH Register</i>	
10	Number of women that receive referral for IUD at facility	<i>Dispensary - National RH Register</i>	
11	Number of women that receive referral for male sterilization at facility	<i>Dispensary - National RH Register</i>	
12	Number of women that receive referral for female sterilization at facility	<i>Dispensary - National RH Register</i>	
13	Number of pregnant women HIV tested at ANC	<i>Dispensary - National ANC Register</i>	
14	Number of pregnant women found HIV positive at ANC	<i>Dispensary - National ANC Register</i>	

15	Number of pregnant women that deliver at the dispensary	<i>Dispensary - National L&D Register</i>	
16	Number of HIV-positive women dispenses prophylaxis at L&D	<i>Dispensary - National L&D Register</i>	
17	Number of infants who receive ARV prophylaxis – single dose Nevirapine	ANC PMTCT Register	
18	Number of HIV-positive mothers counseled on EBF	ANC PMTCT Register	
10	Number of women that receive referral for IUD at facility	<i>Dispensary - National RH Register</i>	
11	Number of women that receive referral for male sterilization at facility	<i>Dispensary - National RH Register</i>	
12	Number of women that receive referral for female sterilization at facility	<i>Dispensary - National RH Register</i>	
13	Number of pregnant women HIV tested at ANC	<i>Dispensary - National ANC Register</i>	
14	Number of pregnant women found HIV positive at ANC	<i>Dispensary - National ANC Register</i>	
15	Number of pregnant women that deliver at the dispensary	<i>Dispensary - National L&D Register</i>	
16	Number of HIV-positive women dispenses prophylaxis at L&D	<i>Dispensary - National L&D Register</i>	
17	Number of infants who receive ARV prophylaxis – single dose Nevirapine	ANC PMTCT Register	
18	Number of HIV-positive mothers counseled on EBF	ANC PMTCT Register	

For more information, please visit aidstar-one.com.

AIDSTAR-One

John Snow, Inc.

1616 Fort Myer Drive, 16th Floor

Arlington, VA 22209 USA

Phone: 703-528-7474

Fax: 703-528-7480

Email: info@aidstar-one.com

Internet: aidstar-one.com