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“That’s why they are no longer coming in numbers”:
A mixed-methods study of integrated HIV and family planning program sustainability in Zambia

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Abstract

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By Karmen Unterwegner

Background: In support of the Zambian government’s effort to address the country’s high prevalence of HIV and high total fertility rate, the Zambia-Emory HIV Research Program implemented a program in government clinics integrating family planning into their long-standing couples’ voluntary HIV counseling and testing (CVCT) services. Implemented from 2013 to 2015, the program trained clinical staff, supported community sensitization, and provided reimbursements or incentives to couples who received counseling. During the program, over 200,000 couples received counseling and over 100,000 women had long-acting reversible contraception (LARC) inserted, for an estimated 20,000+ HIV infections averted and 25,000+ unplanned pregnancies prevented. Six months after program completion, clinics were revisited to assess program sustainability.

Methods: This mixed-methods study abstracted quantitative data from program records and clinic logbooks, and conducted thirteen focus group discussions with service providers. Eighteen of the 55 program clinics were selected for data collection and analysis. Quantitative data on CVCT and LARC uptake from March 2013 through June 2016 were analyzed for overall change, and program endline (October and November 2015) compared to post-program (February and March 2016). Qualitative data from focus group discussion were analyzed to contextualize and more accurately interpret the quantitative data.

Results: Between March 2013 and June 2016, there was a significant change in both the number of couples receiving CVCT ($F=25.8$, $p<.0001$) and the number of women receiving LARC ($F=52.7$, $p<.0001$). Following the end of the program there was a large drop in uptake of both CVCT and LARC methods. The average two-month decrease per clinic was 197 fewer couples receiving CVCT (95% CI -112, -282; $p<.0005$) and 224 fewer women receiving LARC insertion (95% CI -154, -295; $p<.0005$). Focus group discussion participants suggested many possible reasons for the decrease, including the loss of reimbursements/incentives to clients, reduction in service hours, and lack of community sensitization.

Conclusions: The program proved that the intervention could significantly contribute to the national goals of HIV prevention and reduced fertility rate. However, continuation of all program components is necessary for sustained achievement of these goals. Reintroduction of invitation cards, incentives, and an expansion of service hours should be explored.

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Chapter One: Introduction

Introduction and rationale

Zambia has the seventh highest adult HIV/AIDS prevalence globally, at 12.37% (2014 estimate), and the seventh highest total fertility rate, at 5.67 children born per woman on average (2016 estimate) (Central Intelligence Agency, 2017). HIV/AIDS prevalence is declining (Central Statistical Office/Zambia et al., 2015), but the disease is still responsible for approximately 20,000 deaths in Zambia each year (Central Intelligence Agency, 2017). The nation's fertility rate is also higher than desired, with a total wanted total fertility of only 4.5, and more than a third of married women and nearly a third of married men desiring no more children than they currently have (37% and 29%, respectively) (Central Statistical Office/Zambia et al., 2015). The Government of the Republic of Zambia (GRZ) has thus prioritized reducing both the high level of unintended pregnancy and the spread of HIV (Central Statistical Office/Zambia et al., 2015; Republic of Zambia, 2012).

The Zambia-Emory HIV Research Program (ZEHRP) has a long history of research in Zambia, having begun work in Zambia's capital of Lusaka in 1994 and expanding north to the Copperbelt Region in 2004. ZEHRP has focused on couples' voluntary HIV counseling and testing (CVCT) as a method of reducing HIV transmission. CVCT's focus on transmission within couples is especially relevant in urban Zambia, as this is the demographic group where heterosexual HIV transmission is highest (Rwanda Zambia HIV Research Group, 2017).

The effectiveness of CVCT to reduce HIV transmission has been demonstrated by numerous studies (S. Allen et al., 1992; Crepaz, Tungol-Ashmon, Vosburgh, Baack, & Mullins, 2015; Painter, 2001; 2000), with couples counseling and testing even more effective than individual testing (Crepaz et al., 2015; 2000). Voluntary counseling and testing (VCT) allows individual clients to know their status and take action to prevent transmission to others as well as initiate treatment if found HIV positive, which also reduces the probability of transmitting the disease to others by reducing viral load (Cohen et al., 2011; Donnell et al., 2010). CVCT goes a step further and allows partners to learn their status together and respond accordingly. By testing together, couples can more easily disclose their status to each other and make a plan based on their results. This could include support for treatment if one or both partners are HIV positive, prevention methods for transmitting HIV to a negative partner in a sero-discordant couple, and to learn about ways to keep their HIV negative status for couples that are concordant negative (S. Allen et al., 2007; Kelley et al., 2011).

From March 2013 to December 2015, ZEHRP implemented the ‘Integrated HIV Prevention and Family Planning Services for Couples’ program (hereafter referred to as ‘the program’) which integrated family planning into the existing CVCT structure in an effort to reduce vertical transmission of HIV from mother to child. Additionally, the program contributed to the aforementioned GRZ goal of reducing unwanted pregnancies generally.

LARC methods were selected as the focus of the family planning aspect of the program, as they are the most effective form of family planning through virtual elimination of user error (Simmons et al., 1997; World Health Organization, 2014; World Health Organization: Reproductive Health, 2010; Zieman, 2012). The Jadelle implant has 0.05%/year typical use failure rate, closely followed by 0.8%/year for Cu-IUD (Zieman, 2012). Although the devices are effective for 5 or 10 years after insertion, respectively, they can be removed at any time.

After the completion of the program, ZEHRP concluded its support to all but 2 clinics in Lusaka and 8 in Ndola, where CVCT continued under ZEHRP's supervision. However, all providers trained by the program remained working at their respective clinics with the expectation that they could incorporate their newly-acquired skills into their regularly scheduled work, as was intended to sustain impact of the short-term program.

Six months after program completion, clinics were revisited to assess program sustainability. The objective of this assessment was to evaluate the level to which the increased uptake in CVCT and LARC observed during the program was maintained following its completion and the withdrawal of ZEHRP supervision and support, and to assess reasons for changes in service uptake from the service provider perspective.

Problem statement

With the exception of eradication campaigns, public health programs tend to desire for their impact to be long-standing and sustainable. However, many public health programs do not measure and evaluate after program implementation and completion. By this omission, the public health community has little chance of knowing the long-term impacts and sustainability of these programs, much less any detrimental effects that may befall after close supervision is withdrawn. It is only through recognizing and identifying problems in sustainability that they can be addressed.

ZEHRP's 'Integrated HIV Prevention and Family Planning Services for Couples' program was successful in achieving its aims during the implementation phase, far exceeding some of the stated objectives (Rwanda Zambia HIV Research Group, 2016). However, three years of increased uptake in HIV counseling and testing and LARC methods is only a small percentage of the need in Zambia. The effectiveness of the trainings executed as part of the program was intended to continue after ZEHRP

withdrew its direct support, thus continuing to contribute to reductions in HIV transmission and unwanted pregnancies, but program theory ultimately remains unproven without follow-up data.

Purpose statement

The purpose of this study is to determine whether the uptake in CVCT and LARC seen during the ‘Integrated HIV Prevention and Family Planning Services for Couples’ program was sustained following the completion of the program, and to explore reasons why it was or was not. This will be achieved through comparison of CVCT and LARC uptake data at selected program sites during and after program implementation, from ZEHRP records and GRZ clinic records respectively, and complemented and contextualized by focus group discussions with service providers at the same GRZ clinics.

Research questions

This study seeks to answer the following questions:

1. Following the completion of the ‘Integrated HIV Prevention and Family Planning Services for Couples’ program, did uptake of CVCT and/or LARC change from that measured during program implementation?

Null hypothesis: Following the completion of the ‘Integrated HIV Prevention and Family Planning Services for Couples’ program, uptake of CVCT and LARC did not change.

2. According to service providers working in clinics where the ‘Integrated HIV Prevention and Family Planning Services for Couples’ program was implemented, what are reasons change did or did not occur?

Significance statement

The findings of this study will contribute to public health program design and implementation in two ways:

1. ***Provide a more complete picture of the 'Integrated HIV Prevention and Family Planning Services for Couples' program.*** There are numerous publications planned to describe the above program as implemented by ZEHRP, but none which have yet explored the continued effects after the program was completed. This study will begin to fill this gap.
2. ***Propose ways which might contribute to greater sustainability in future programs and programs in Zambia, and other places with a similar context.*** This study is not designed to be representative of all programs in Zambia, HIV, or family planning, however, the views expressed by service providers could potentially provide lessons applicable to other settings.

Definition of terms

Couples' voluntary counseling and testing (CVCT) – voluntary testing and counseling provided to couples who seek to be tested for HIV together

Government clinic – any health clinic funded by and operated by staff employed by the government of the Republic of Zambia

High performing – relating to uptake of LARC or HIV counselling and testing, refers to clinics with highest uptake in comparison to other clinics or providers with highest number of clients served, with no threshold identified

HIV+ - designation given to an individual who has tested positive for the HIV virus

In-charge – most senior member of staff in government clinics who is responsible for operations throughout the clinic, sometimes referred to as 'Sister In-charge'

Integration – the combination of efforts in two or more typically separate areas; in this study family planning and HIV

Long-acting reversible contraception (LARC) – contraceptive methods which are implanted into a woman’s body either intrauterine or sub-dermal and effective for greater than three years

Rural clinic – any clinic defined as rural by GRZ

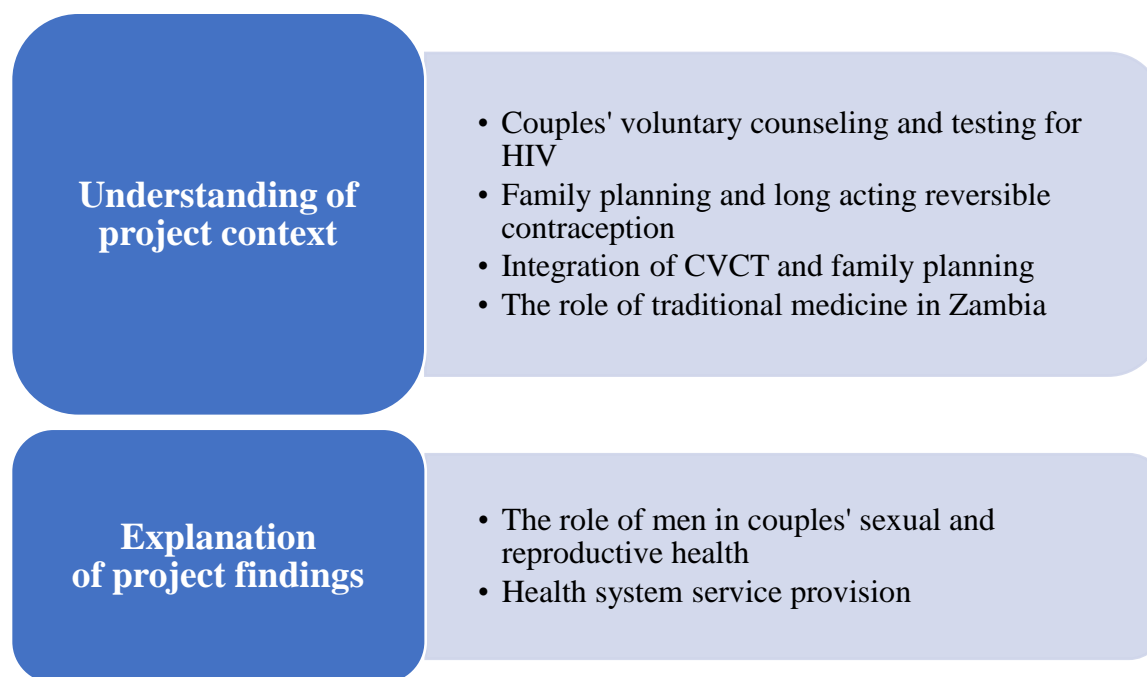
Service provider – any member of staff at a clinic in Zambia who is providing service directly to clients, which, for this study, are primary family planning providers, HIV counselors, and in-charges

Sustainability – ability to achieve sustained effects over the long-term, meant in this study to refer to effects after active program involvement have ceased

Urban clinic – any clinic defined as urban by GRZ

Voluntary counseling and testing (VCT) – testing for HIV (typically as individuals, unless called CVCT) by a trained counselor, including pre- and post- HIV test counselling about HIV and its treatment

Chapter Two: Literature Review



Couples' voluntary counseling and testing (CVCT) for HIV

The effectiveness of HIV voluntary counseling and testing (VCT) as a prevention strategy in the global fight against HIV/AIDS has been shown in several studies (S. Allen et al., 1992; Crepaz et al., 2015; Painter, 2001; 2000), with couples' testing (CVCT) even more effective than individuals testing alone (Crepaz et al., 2015; 2000). By receiving their pre- and post-test counselling together, couples more easily navigate disclosure of their test results, and, should one or both partners receive positive results, help provide the necessary support in managing the

disease (S. Allen et al., 2007; Kelley et al., 2011). A study in Rwanda showed an increase in condom use from 4% to 57% amongst sero-discordant couples that were tested and counselled together, though the rate was lower if the woman was the HIV-negative partner (S. Allen et al., 1992).

Despite the advantages of VCT and CVCT, and the high prevalence of HIV in Zambia (13% of adults), testing remains low (Central Statistical Office/Zambia et al., 2015). Many barriers to testing exist, such as stigma, partner reaction, difficulty in travelling to testing sites, lack or perceived risk, and misconceptions about testing and treatment (Addai, 1999; Central Statistical Office/Zambia et al., 2015; Kelley et al., 2011; Mtenga, Geubbels, Tanner, Merten, & Pfeiffer, 2016; Musheke, Merten, & Bond, 2016)

Demand creation for CVCT

Methods of increasing CVCT demand have proven effective address these barriers, and include community-based promotion by community members such as religious leaders or peer community workers (S. Allen et al., 2007; Kelley et al., 2011; Wall et al., 2012), one-on-one interactions with trained promotors (Kelley et al., 2016; Kelley et al., 2011), and media, particularly radio and television (Kelley et al., 2011), although radio is a difficult medium in Zambia due to expensive advertising costs and the multitude of languages (Kelley et al., 2016). Another suggested method of increasing demand through barrier reduction addresses transportation barriers by offering home-based or mobile-based testing (S. Allen et al., 2007).

Family planning and Long Acting Reversible Contraception (LARC)

Zambia has one of the highest fertility rates in the world, with a total fertility rate (TFR) of 5.3 births per woman (Central Statistical Office/Zambia et al., 2015; United Nations Population

Division, 2014). Though TFR has been declining, there remains an unmet need for family planning as ideal family size (IFS) and wanted fertility rate (WFR) lies below TFR (IFS: 4.7 children for women, 5.0 children for men; WFR: 4.5 children) (Central Statistical Office/Zambia et al., 2015). Additionally, only 62.5 percent of births are planned, leaving 31.4 percent mistimed and the remaining unwanted (Central Statistical Office/Zambia et al., 2015). Despite this apparent need for family planning and its free access through government clinics, only 45 percent of married women use a modern method of contraception (Central Statistical Office/Zambia et al., 2015; Republic of Zambia, 2012).

Long-term reversible contraceptives (LARC) methods are widely considered to be the most effective forms of birth control (Simmons et al., 1997; World Health Organization, 2014; World Health Organization: Reproductive Health, 2010). The copper-T (CuT) intrauterine device (IUD) has a 0.8 percent typical use failure rate and the Jadelle contraceptive implant 0.05 percent (Zieman, 2012); this is particularly minimal when compared to the six percent failure rate of Zambia's most popular method of injectable contraceptives (19.3% of women using) and the nine percent rate typically experienced by users of oral contraceptive pills (Central Statistical Office/Zambia et al., 2015; Zieman, 2012). Non-hormonal CuT IUDs have received further popularity for HIV positive women due to the lack of any drug interaction with anti-retroviral therapy treatments (Specification: Prequalification). Additionally, though LARC methods require greater up-front cost and time, they require fewer visits overall and no further financing until removal, resulting in long-term cost-effectiveness and efficiency (Khu et al., 2013; World Health Organization: Reproductive Health, 2010)

As mentioned, though it is the Government of Zambia's policy to provide family planning services free of charge (Republic of Zambia, 2012), many barriers have been identified to active

uptake. Transport costs, lack of information about methods and their side effects, long wait times for service provision, limited numbers of trained providers (especially in rural areas), inconsistent supplies, provider bias towards other methods, and socio-cultural issues such as religious beliefs and stigma regarding sexual activity have all been found to affect contraceptive uptake (Neukom, Chilambwe, Mkandawire, Mbewe, & Hubacher, 2011; Wall, Vwalika, et al., 2013; Warenus et al., 2007), particularly among young people (Warenus et al., 2007) and women with limited autonomy (Wall, Vwalika, et al., 2013).

The socio-cultural context must also be considered when introducing a new form of contraceptive (Imasiku, Odimegwu, Adedini, & Ononokpono, 2014; Simmons et al., 1997; World Health Organization, 2014; World Health Organization: Reproductive Health, 2010). In sub-Saharan Africa, a culture of not talking about sex and male dominance over women's sexuality can lead to covert use of contraceptives (Biddlecom & Fapohunda, 1998). Due to this secrecy, even minor side effects that may be noticeable to a sexual partner can result in discontinuation of use (Biddlecom & Fapohunda, 1998). In addressing behavior and cultural change, male partner involvement can be beneficial, with his inclusion in counsellor provided information being associated with higher rates of method continuation (Haddad et al., 2013).

Demand creation for LARC

Various studies have explored methods for increasing uptake of LARC methods (Arrowsmith, Aicken, Majeed, & Saxena, 2012; Neukom et al., 2011). A recent meta-analysis found that four types of interventions were commonly used for copper intrauterine devices (IUDs): contraceptive counselling and referral by community workers, antenatal contraceptive counselling, postnatal home visits, and post-abortions contraceptive counselling (Arrowsmith et al., 2012). Of these, only the two former methods significantly increased IUD uptake

(Arrowsmith et al., 2012). Increasing the number of LARC providers to ensure consistent access for clients has also been shown to increase uptake (Neukom et al., 2011), as has providing sufficient information to HIV positive or discordant couples (Khu et al., 2013). Male partner involvement has been associated with LARC uptake as well (Haddad et al., 2013; Stephenson et al., 2011). Stephenson (Stephenson et al., 2011) found that many men were misinformed about IUD efficacy, contributing to their reticence for their partners to use it; they suggest that correcting the misconceptions for men may lead to increased uptake amongst women. However, likely due to gender norms and perceptions of masculinity, it has been found to be more advantageous to address men directly rather than approaching them through their female partners (Biddlecom & Fapohunda, 1998; Wall, Vwalika, et al., 2013)

Integration of CVCT and family planning

With both VCT and family planning existing in the sphere of sexual and reproductive health, integration of the two services has been researched numerous times. Reviews of such studies find them to be largely successful and effective in promoting both services (Church & Mayhew, 2009; Spaulding et al., 2009). It's also recognized that integration can ease burdens on clients, reducing two appointments or waiting lines down to one, increasing access to more services, and even reducing experienced stigma due to ambiguity of services received (Church & Mayhew, 2009). However, many of the other barriers to uptake for the individual components remain, with clients citing misconceptions about HIV, contraceptive side effects, partner preferences (Haddad et al., 2013; Wall, Haddad, et al., 2013). Counselling has been found effective in correcting misconceptions about both HIV and contraception, and alleviating concerns about side effects of contraception (Haddad et al., 2013).

The role of men in couples' sexual and reproductive health

Clearly within CVCT, but additionally in family planning and therefore also in integrated programs and research, male partners have significant influence. As mentioned previously, male dominance over women's sexuality can impact use of, choice of, and adherence to contraceptives, both positively and negatively (Biddlecom & Fapohunda, 1998; Haddad et al., 2013; Kwambai et al., 2013; Sileo, Wanyenze, Lule, & Kiene, 2016; Stephenson et al., 2011; Wall, Haddad, et al., 2013). Efforts to utilize the positive influence of gender power dynamics have often focused on prevention of mother-to-child transmission (PMTCT) of HIV. Two common methods of male partner involvement are identifying possible HIV infection of the mother through HIV testing of both partners, and as support for other preventive behaviors such as antiretroviral therapy (ART) and contraceptive adherence (Brusamento et al., 2012; Byamugisha, Tumwine, Semiyaga, & Tylleskar, 2010; Ditekemena et al., 2012; Morfaw et al., 2013; Sherr & Croome, 2012). Male partners have also been found to have misconceptions of contraceptive side effects that keep them from supporting use of modern methods (Sileo et al., 2016). Additionally, spousal trust can be increased through partner attendance, ensuring that both members of the couple receive the same information (Kwambai et al., 2013).

Two oft cited reasons for men's limited involvement are time constraints and lack of comfort in facilities considered largely for women (Ditekemena et al., 2012; Matovu et al., 2014; Morfaw et al., 2013; Price & Hawkins, 2002; Sileo et al., 2016). The latter is found to be exacerbated by the staff treatment of male clients who do come to clinics (Byamugisha et al., 2010; Ditekemena et al., 2012; Nyondo, Chimwaza, & Muula, 2014; Sileo et al., 2016). These staff members can experience the same discomfort as the male clients themselves of having men in the maternal and

child (MCH) ward (Byamugisha et al., 2010; Ditekemena et al., 2012; Nyondo et al., 2014; Sileo et al., 2016). Men who do come with their partners can also be irritated by stockouts in family planning methods, which frustrate the purpose of their visit (Nyondo et al., 2014).

Methods for increasing male involvement in reproductive health services

Research suggests that sensitization of both clients and staff to the importance and acceptance of men in the MCH ward will reduce stigma surrounding their involvement in family planning and encourage uptake of couple-based and couple-friendly services (Byamugisha et al., 2010; Ditekemena et al., 2012; Nyondo et al., 2014; Sileo et al., 2016). Simply being informed of the existence of a male-friendly PMTCT program in Uganda doubled the chances that a male partner would participate in ante-natal clinics (Byamugisha et al., 2010), and verbal invitations were found to be equally effective to written invitations in Tanzania (Theuring, Jefferys, Nchimbi, Mbezi, & Sewangi, 2016). For VCT and CVCT, men appear to be more difficult to reach than their female partners (Kelley et al., 2016; Sileo et al., 2016). Mobile testing, when an vehicle is outfitted with necessary testing materials and can provide service on location, and other programs that bring services to men are an option which mitigates the stigma of visiting the MCH facilities and reduces travel time, but can also lessen the female partner's involvement (Byamugisha et al., 2010; Ditekemena et al., 2012; Nyondo et al., 2014; Osoti et al., 2014). Some findings suggest that invitation cards are an effective tool for recruitment, either directly from staff or sent home with women after antenatal care (Byamugisha et al., 2010; Jefferys, Nchimbi, Mbezi, Sewangi, & Theuring, 2015; Matovu et al., 2014; Sileo et al., 2016). Partner 'tracing,' where partner contact information is used to seek out male partners of female clients by phone and/or in person, was tested by Rosenberg (2015) as a follow-up method in Malawi. The study found tracing even more effective than simple invitations, but also more expensive

(Rosenberg et al., 2015). As mentioned previously, however, some issues may arise within the gender and power dynamic if the invitation is perceived as the woman requiring her male partner to attend (Biddlecom & Fapohunda, 1998; Wall, Vwalika, et al., 2013). Another option is for peers or influential community members to promote male involvement, sensitizing at community events or through invitation distribution (Matovu et al., 2014; Nyondo et al., 2014; Sileo et al., 2016). Invitations and sensitization conducted through mass media are also recommended, keeping in mind the literacy and access of the target group of male partners (Nyondo et al., 2014). Based on feedback from providers and clients alike, increasing the number of staff available and the operating hours, thus reducing long wait times and easing issues for men with difficult work schedules, has been identified as an important change for improvement in males' involvement (Byamugisha et al., 2010; Matovu et al., 2014; Nyondo et al., 2014; Rosenberg et al., 2015). Another suggested time saving intervention is the 'couples go first' promotion, where couples can jump the queue ahead of individuals, thus rewarding women who have brought their partner, and saving time for men (Matovu et al., 2014; Nyondo et al., 2014; Sileo et al., 2016).

Health system service provision

Zambia's healthcare system suffers from staff shortages and insufficient facilities (Republic of Zambia, 2012). Most efforts to improve healthcare delivery in sub-Saharan countries focus on training new providers, but potential exists for improving performance among existing staff (Mshelia et al., 2013). Franco et al. found that salary was only one motivator for health workers, and that non-financial incentives could be even more effective (Franco, Bennett, Kanfer, & Stubblebine, 2004). In Ghana, health workers were satisfied by these non-financial incentives,

which included recognition from supervisors and/or greater respect in the community due to their work (Bonenberger, Aikins, Akweongo, & Wyss, 2014).

Material incentives for health care providers

Pay-for-performance interventions in low- and middle-income countries, including those which pay individual healthcare providers for specific service provision, have had mixed results (Witter, Fretheim, Kessy, & Lindahl, 2012). Both monetary and non-monetary incentives can have impacts on motivation (Willis-Shattuck et al., 2008). They have specifically been found to motivate individual action, but can also introduce competition and weaken collaboration within clinics, prioritizing efforts only where supplemental pay is received, for example (Mshelia et al., 2013; Witter et al., 2012). The World Health Organization thus recommends that interventions have more than one focus, mitigating the threat of one component monopolizing provider energies (World Health Organization, 2010). The general consensus regarding the use of these incentives is that they are a short-term solution with little sustainability (Witter et al., 2012).

Nudging

Nudging is a manner of promoting specified behavior by changing how choices are presented, rather than by incentive or enforcement, by making the desired choice the easiest (Junghans, Cheung, & De Ridder, 2015). Consumers and clients generally accept being ‘nudged’ if the promoted behavior is beneficial to their well-being (Junghans et al., 2015)

Staff trainings

Training alone will not necessarily result in health improvements for clients unless the organizational structure of facilities is conducive to effective implementation (Mshelia et al., 2013). However, client dissatisfaction with treatment, particularly during antenatal care, suggest

that further training of existing staff is necessary (Byamugisha et al., 2010; Ditekemena et al., 2012; Stekelenburg, Kyanamina, Mukelabai, Wolffers, & van Roosmalen, 2004). Deficiencies in training have also been linked to past failures to effectively integrate programs, where providers lack comfort in the linked program domain, and the opposite has been found when training was more substantial (Church & Mayhew, 2009)

The role of traditional practices in the Zambian health system

Traditional medicine remains an important part of health-seeking behavior in Zambia (Dillon-Malone, 1988; Maimbolwa, Yamba, Diwan, & Ransjo-Arvidson, 2003; Musheke et al., 2016; Ndubani & Hojer, 1999a, 1999b; Stekelenburg et al., 2005; Stekelenburg et al., 2004). Stekelenburg et al. identified four types of common traditional healers: birth attendants, faith healers, diviners, and herbalists (Stekelenburg et al., 2005). Zambia's identity as a 'Christian nation' has been enveloped by the community of traditional medicine, empowering faith healers in particular (Dillon-Malone, 1988). Sexual and reproductive health is a major portion of traditional healers' work, not only for birth attendants but for the others types of healers as well (Dillon-Malone, 1988; Maimbolwa et al., 2003; Ndubani & Hojer, 1999a, 1999b; Stekelenburg et al., 2005; Stekelenburg et al., 2004). Many traditional healers value the role of modern medicine in Zambia, even referring patients on occasion (Ndubani & Hojer, 1999a; Stekelenburg et al., 2005).

Traditional healers are often closer to communities and clients, both geographically and socially, making them more easily accessed and sometimes more trusted (Dillon-Malone, 1988; Maclean & Bannerman, 1982; Ndubani & Hojer, 1999a; Stekelenburg et al., 2005). This acceptance allows them to fill the gaps left by shortages within Zambia's government health

system, particularly in rural areas (Dillon-Malone, 1988; Ndubani & Hojer, 1999a). In his seminal article on ‘medical systems as cultural systems,’ Kleinman notes that modern medicine tends to focus on observed symptoms of disease, and neglects the cultural context that may have contributed to it (Kleinman, 1978). He further notes that healers’ recognition of these factors makes their counselling more holistic, more understandable, and therefore more accepted by many clients (Kleinman, 1978). This assertion is supported by health care research in Zambia, especially among men (Maclean & Bannerman, 1982; Maimbolwa et al., 2003; Stekelenburg et al., 2005). Another study by Stekelenburg et al. found that this acceptance transcends cost, which can be substantially higher than treatment at government clinics (Stekelenburg et al., 2005).

This accessibility results in traditional healers having great potential for dissemination of information, educated or otherwise (Ndubani & Hojer, 1999b; Stekelenburg et al., 2005).

Genital practices among women

Numerous traditional practices in genital modification exist in the region. These practices are viewed as a way to embrace womanhood, enhance sexual pleasure, and ensure fertility (Martin Hilber et al., 2012; Martinez Perez, Mubanga, Tomas Aznar, & Bagnol, 2015).

Labia elongation, caused by the manual stretching of the labia minora over time, is said to ‘hold’ and ‘heat’ the penis during sex, and well as help keep semen inside to encourage conception (Martin Hilber et al., 2012; Martinez Perez et al., 2015). Some women believe that the labia has protective properties, guiding against sexually transmitted infection (STI) transmission or holding a condom on during intercourse (Martinez Perez et al., 2015).

Cleansing of the vagina for hygienic purposes is common in the region, and is practiced to rid the body of ‘dirt,’ a term used for menstrual blood and other vaginal discharge (C. F. Allen et al., 2010; Martin Hilber et al., 2012). Another common practice is the drying and/or tightening of

the vagina for sexual purposes (Martinez Perez et al., 2015). Two methods of cleansing or drying are typically used: insertion of materials and the manual removal. Drying materials can include salt, paper, cotton, toilet paper, lemon, soap, herbs (C. F. Allen et al., 2010; Martin Hilber et al., 2012; Martinez Perez et al., 2015). Manual cleansing might be done with a finger or cloth (C. F. Allen et al., 2010; Martin Hilber et al., 2012). Menstrual blood, is thought as important to remove from the body. Contraceptive methods which result in amenorrhea are often less desirable, holding in the 'dirt' (Glasier et al., 2003).

These practices are seen by some in the younger generations as outdated, but many still hold to the traditional beliefs (Martinez Perez et al., 2015). There are said to remain strong social norms which encourage women to partake in genital modification practices (C. F. Allen et al., 2010; Martin Hilber et al., 2012).

Conclusion

CVCT and LARC methods have a proven effectiveness in reducing HIV transmission and unplanned pregnancy, respectively. Their integration has largely been successful as well, though most reproductive health research has not targeted LARC methods specifically but family planning in general and often focused on PMTCT. Much of this research has been done in Zambia, and in surrounding countries. Though the role of traditional medicine was not frequently mentioned in this study's qualitative data, its appearance in much of the related literature shows its importance in the context of health care in Zambia.

Other contextual factors that had a noticeable presence in the qualitative research were the role of men in CVCT and LARC uptake and the role of the health system of Zambia in their service provision. Male involvement was less documented in Zambia than many other countries in the region, but research shows that they have a major influence on their partners' sexual and

reproductive health. This trend is likely to translate to the Zambian context and is substantiated by the research that has occurred there. The impact of health systems and service provision is arguably more complex, with system limitations conflicting with client and provider desires. Zambia, with government subsidized healthcare, suffers from budget restrictions that have resulted in undertrained and undersupplied staff. Short term solutions, such as incentives, have been proven effective, but more sustainable options remain largely theoretical.

A theme throughout all of the abovementioned topics is the role of sensitization in improving health. Through added knowledge of HIV and family planning, clients are more likely to seek services and respond positively after their receipt, improving health outcomes directly and reducing stigma in the process. Updated training for staff, though less proven, is said to improve patient satisfaction. Men in particular have been promoters and sometime targets of successful sensitization campaigns, benefitting themselves and their partners. Even research in traditional medicine promotes the role of information and the possibility of strengthening community health by educating and involving healers.

Chapter Three: Manuscript

Contribution of the Student

Karmen Unterwegner was the primary contributor to study development, data collection and analysis, and writing, including figure and table creation. As thesis chair and CEO of the Rwanda Zambia HIV Research, Dr. Susan Allen proposed the initial idea of a study of program sustainability as the research subject and provided guidance for research design development, as well as feedback on data analysis and manuscript writing. Claudia Ordóñez provided qualitative research expertise and anthropologic perspective, including continuous discussion and feedback of qualitative analysis and manuscript writing. Dr. Kristin Wall provided quantitative research expertise, particularly selection of statistical methods and development of graphics. The remaining authors provided support during the study design and data collection phase of research.

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Title Page for Manuscript

“That’s why they are no longer coming in numbers”:
A mixed-methods study of outcome sustainability for an HIV and family planning integrated
program conducted in Zambian health clinics

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Abstract

Background: In support of the Zambian government's effort to address the country's high prevalence of HIV and high total fertility rate, the Zambia-Emory HIV Research Program implemented a program in government clinics integrating family planning into their long-standing couples' voluntary HIV counseling and testing (CVCT) services. Implemented from 2013 to 2015, the program trained clinical staff, supported community sensitization, and provided reimbursements or incentives to couples who received counseling. During the program, over 200,000 couples received counseling and over 100,000 women had long-acting reversible contraception (LARC) inserted, for an estimated 20,000+ HIV infections averted and 25,000+ unplanned pregnancies prevented. Six months after program completion, clinics were revisited to assess program sustainability.

Methods: This mixed-methods study abstracted quantitative data from program records and clinic logbooks, and conducted thirteen focus group discussions with service providers. Eighteen of the 55 program clinics were selected for data collection and analysis. Quantitative data on CVCT and LARC uptake from March 2013 through June 2016 were analyzed for overall change, and program endline (October and November 2015) compared to post-program (February and March 2016). Qualitative data from focus group discussion were analyzed to contextualize and more accurately interpret the quantitative data.

Results: Between March 2013 and June 2016, there was a significant change in both the number of couples receiving CVCT ($F=25.8$, $p<.0001$) and the number of women receiving LARC ($F=52.7$, $p<.0001$). Following the end of the program there was a large drop in uptake of both CVCT and LARC methods. The average two-month decrease per clinic was 197 fewer couples receiving CVCT (95% CI -112, -282; $p<.0005$) and 224 fewer women receiving LARC insertion (95% CI -154, -295; $p<.0005$). Focus group discussion participants suggested many possible reasons for the decrease, including the loss of reimbursements/incentives to clients, reduction in service hours, and lack of community sensitization.

Conclusions: The program proved that the intervention could significantly contribute to the national goals of HIV prevention and reduced fertility rate. However, continuation of all program components is necessary for sustained achievement of these goals. Reintroduction of invitation cards, incentives, and an expansion of service hours should be explored.

Keywords: mixed-methods, HIV, family planning, service integration, Zambia, incentives, CVCT, LARC

Introduction

Zambia has the seventh highest adult HIV/AIDS prevalence globally, at 12.37% (2014 estimate), and the seventh highest total fertility rate, at 5.67 children born per woman on average (2016 estimate) (Central Intelligence Agency, 2017). HIV/AIDS prevalence is declining (Central Statistical Office/Zambia et al., 2015), but the disease is still responsible for approximately 20,000 deaths in Zambia each year (Central Intelligence Agency, 2017). The nation's fertility rate is also higher than desired, with a total wanted total fertility of only 4.5, and more than a third of married women and nearly a third of married men desiring no more children than they currently have (37% and 29%, respectively) (Central Statistical Office/Zambia et al., 2015). The Government of the Republic of Zambia (GRZ) has thus prioritized reducing both the high level of unintended pregnancy and the spread of HIV (Central Statistical Office/Zambia et al., 2015; Republic of Zambia, 2012).

The Zambia-Emory HIV Research Program (ZEHRP) has a long history of research in Zambia, having begun work in Zambia's capital of Lusaka in 1994 and expanding north to the Copperbelt Region in 2004. ZEHRP has focused on couples' voluntary HIV counseling and testing (CVCT) as a method of reducing HIV transmission. CVCT's focus on transmission within couples is especially relevant in urban Zambia, as this is the demographic group where heterosexual HIV transmission is highest (Rwanda Zambia HIV Research Group, 2017).

The effectiveness of CVCT to reduce HIV transmission has been demonstrated by numerous studies (S. Allen et al., 1992; Crepaz et al., 2015; Painter, 2001; 2000), with couples counseling and testing even more effective than individual testing (Crepaz et al., 2015; 2000). Voluntary counseling and testing (VCT) allows individual clients to know their status and take action to prevent transmission to others as well as initiate treatment if found HIV positive, which also reduces the probability of transmitting the disease to others by reducing viral load (Cohen et al., 2011; Donnell et al., 2010). CVCT goes a step further and allows partners to learn their status together and respond accordingly. By testing together, couples can more easily disclose their status to each other and make a plan based on their results. This

could include support for treatment if one or both partners are HIV positive, prevention methods for transmitting HIV to a negative partner in a sero-discordant couple, and to learn about ways to keep their HIV negative status for couples that are concordant negative (S. Allen et al., 2007; Kelley et al., 2011).

Transitioning from a larger CVCT-only program (70 clinics), from March 2013 to December 2015, ZEHRP implemented the 'Integrated HIV Prevention and Family Planning Services for Couples' program (hereafter referred to as 'the program') which integrated family planning into the existing CVCT structure in an effort to reduce vertical transmission of HIV from mother to child. Additionally, the program contributed to the aforementioned GRZ goal of reducing unwanted pregnancies generally.

LARC methods were selected as the focus of the family planning aspect of the program, as they are the most effective form of family planning through virtual elimination of user error (Simmons et al., 1997; World Health Organization, 2014; World Health Organization: Reproductive Health, 2010; Zieman, 2012). The Jadelle implant has 0.05%/year typical use failure rate, closely followed by 0.8%/year for Cu-IUD (Zieman, 2012). Although the devices are effective for 5 or 10 years after insertion, respectively, they can be removed at any time.

After the completion of the program, ZEHRP concluded its support to all but 2 clinics in Lusaka and 8 in Ndola, where CVCT continued under ZEHRP's supervision. However, all providers trained by the program remained working at their respective clinics with the expectation that they could incorporate their newly-acquired skills into their regularly scheduled work, as was intended to sustain impact of the short-term program.

Six months after program completion, clinics were revisited to assess program sustainability. The objective of this assessment was to evaluate the level to which the increased uptake in CVCT and LARC observed during the program was maintained following its completion and the withdrawal of ZEHRP

supervision and support, and to assess reasons for changes in service uptake from the service provider perspective.

Methods

Ethical Considerations

Ethics approval was obtained through the Institutional Review Board of Emory University in the United States (IRB00000453 and IRB00000569) and by the University of Zambia Health Sciences Research Ethics Committee in Zambia (IRB00011000) as part of the larger activities being conducted by ZEHRP. Additionally, access to clinic data was granted by clinic supervisors, and focus group discussion participants provided signed informed consent. All data was de-identified during collection.

Integrated program

With funding provided by the United Kingdom's Department for International Development (DFID), the program had four major components: training existing VCT counselors in integrated CVCT and family planning counseling with a focus on LARC provision; training existing family planning providers in insertion and removal of two LARC methods – the copper-T intrauterine device (Cu-IUD) and Jadelle implant; promoting CVCT in the community through distribution of invitation cards; and giving reimbursement or incentives to couples coming for CVCT. Working in collaboration with the GRZ, all persons trained for the program were already working in their respective fields in government clinics. These health care providers were paid a supplemental stipend by ZEHRP to work on their off-days specifically for the program, the amount of which was consistent with their standard overtime pay. This often included working on weekends.

Non-pregnant couples who came to clinics for CVCT received either transport reimbursement in cash or a *chitenge*, a versatile piece of cloth often used as clothing, as incentive for their participation. No incentive was given to women or couples for initiating a LARC method, or any other form of family planning, and there was no cost to clients for either CVCT or family planning services. All VCT (including CVCT) and family planning service are free under the GRZ healthcare system, including the provision of any desired family planning method.

Clinic selection

Of the 55 clinics across the 6 coverage areas (5 districts: Chingola, Kitwe, Luanshya, Ndola, and Lusaka; and 1 province: Southern Province) included in the program, 18 were selected for inclusion in data collection and analysis, with three clinics representing each area. Clinics were selected based on the number of women receiving a LARC method during the months of October and November 2015, with the clinics with highest LARC uptake selected. Although the program ended in December 2015, the months of October and November were considered representative of endline performance, since the final month of the calendar year was noted as low-performing across Zambia, and attributed to holiday celebrations.

Study design

The study is mixed methods in design, with quantitative data collected first and qualitative data collected second to describe the quantitative data. Quantitative data was abstracted from existing sources, and qualitative data resulted from focus group discussions (FGDs).

Data abstraction

Quantitative data was abstracted from clinic logbooks and ZEHRP records. ZEHRP records provided data from the duration of the program (March 2013 to December 2015) and was aggregated to monthly

totals. Data for 2016 was abstracted from clinic logbooks during the months of June and July and consisted of daily data from 1 January 2016 through the abstraction date (see Table 2). For clinics visited prior to the end of June, the total for that month was estimated based on the average daily uptake to that date. Data abstracted from both sources consisted of (1) number of individuals receiving CVCT, and (2) number of women receiving a long acting reversible contraceptive (LARC).

Focus group discussions

Two VCT counselors and two family planning providers from each of the 18 clinics selected for data collection and analysis were invited to participate in focus group discussions (FGDs). Providers were identified for invitation using the following criteria:

1. Trained by ZEHRP in CVCT (for VCT FGDs) or LARC insertion (for family planning FGDs)
2. Still working as a VCT counselor (for VCT FGDs) or family planning provider (for family planning FGDs) in that government clinic

If there were more than two individuals at a single clinic fitting the above criteria, ZEHRP staff identified those providers who had been highest performing during the DFID program for invitation. If invited FGD participants stated in advance their inability to attend, the next highest performing provider in their field from the same clinic was invited.

Additionally, a third category of FGD was conducted with clinic supervisors (referred to in Zambia as ‘in-charges’) from the selected clinics in the Ndola and Luanshya districts. These clinics were selected due to the geographical proximity of the two districts. It was necessary to combine two coverage areas to achieve a reasonable FGD size, as only one in-charge exists for each clinic and only three clinics are included in this study from each coverage area. No other FGDs were planned for in-charges, as the travel required to combine any of the other areas was considered unreasonable. This single in-charge FGD was

not intended to reach saturation on in-charge experience, but simply to provide some context for and confirmation of VCT counselor and family planning provider data.

As described above, thirteen FGDs were planned: one in-charge FGD, one family planning provider FGD for each coverage area for a total of six family planning FGDs, and one VCT counselor FGD for each coverage area for a total of six VCT FGDs. One planned family planning FGD became an in-depth interview due to lack of other participants, and the twelve remaining FGDs ranged from three to six participants. All FGDs were conducted after clinic data abstraction had been done at the participants' respective clinics (see Table 2).

FGDs were conducted at locations within one hour of travel time from the providers' respective clinics. The FGD locations were all off-site from the clinics and participants were reimbursed for their transport costs to the FGD. Three separate but related focus group guides were used for the three FGD categories: family planning providers, VCT counselors, and in-charges. All focus groups were facilitated by the researcher (KFU), and dually recorded using Microsoft Sound Recorder software and either Apple Voice Recorder or an Olympus digital recorder. All FGDs were conducted in English.

Data analysis

Abstracted data was entered into Microsoft Excel, which was used for all calculations. Program data was analyzed visually to evaluate trends, with ANOVA used to calculate significance of overall change. Data from October and November 2015, considered program endline data for the reasons noted previously, was compared to post-program data from February and March 2016 using a paired T-test. February and March were selected for proximity to the end of the program, with January excluded for the same reason as December. ANOVA and T-tests were conducted on both CVCT and LARC uptake data.

The qualitative data from FGD recordings were transcribed verbatim and analyzed using MaxQDA version 12.2.1 software. First reading included a sample of transcripts for the purpose of adding memos

with researcher observations. Codes were then identified thematically, using some pre-determined themes and others which emerged during analysis. Codes were applied in two separate readings, then merged for analysis. Coded sections were grouped and exported to MS Word for intra-code analysis, with exemplary quotes identified at this stage.

Results

Changes in service uptake

Between March 2013 and December 2015, during the program, 1035 counselors and 425 family planning providers were trained in 55 urban clinics and 215 rural clinics in the Southern, Lusaka, and Copperbelt provinces. Over 200,000 couples received CVCT (120,572 urban and 89,114 rural) and over 100,000 women had LARC inserted (65,751 urban and 35,811 rural). Between March 2013 and June 2015, which includes the duration of the program and the first six months after the program ended, there was a significant change in both the number of couples receiving CVCT ($F=25.8$, $p<.0001$) and the number of women receiving LARC ($F=52.7$, $p<.0001$). As shown in Figures 1 and 2, following the end of the program there was a large drop in uptake of both CVCT and LARC methods. For CVCT, uptake starts high in 2013 coming off of the existing program, with dips visible in December of both 2013 and 2014 and recovery in subsequent months. A similar seasonal impact is noticeable but to a lesser magnitude for LARC uptake. Trends in CVCT show relatively steady service use over the course of the program followed by a drop to a lower level than at program initiation at the start of 2016. LARC uptake is even more striking, with insertions starting at zero and steadily increasing until the end of 2015, then falling off.

In total for the 18 selected clinics, 4480 couples received CVCT in October and November of 2015, dropping to only 926 couples in February and March of 2016. The average decrease per clinic was 197 fewer couples receiving CVCT over the two-month period (95% CI -112, -282; $p<.0005$) (Figure 3).

LARC fared similarly: 5262 LARC methods were inserted in October and November 2015, but only 1226 in February and March 2016. The average decrease per clinic was 224 fewer women receiving LARC insertion over the post-program two-month period (95% CI -154, -295; $p < .0005$) (Figure 4).

Changes in service provision

As detailed with other qualitative themes in Table 1, during FGDs service providers stated that their regular provision of services had not changed post program, but that rather the decrease in client uptake came from the decrease in demand for CVCT and LARC services. Many FGD participants attributed this decrease to two main changes in provision: the lack of incentive to clients (transport reimbursement or *chitenge* for CVCT) and the reduced hours that services were now being provided. Two clinics continued to provide services on weekends, but most did not, which was said to increase difficulty in participation for male partners. FGD participants also mentioned that their motivation to work late or come in on the weekends had decreased, as they were no longer supplementing their income with program funded overtime. Without the financial incentive motivating them, providers did not want to stay late to take care of the remaining queue of clients (due to staff shortages), nor were they willing to work on the weekends without supplemental pay, though they recognized that this contributed to the decrease in demand for services. Some participants chastised their clients and colleagues for not viewing health as a sufficient motivator, one VCT counselor saying ‘because you cannot be paid for life, you cannot pay for a life.’ However, the desire for and effectiveness of the supplemental pay was more frequently expressed.

Barriers to seeking services

Over half of the FGDs (8/13) expressed a need for continued community sensitization on the advantages of CVCT and/or family planning services. This included education about the benefits of their respective services (7 FGDs) and giving out invitation cards to prospective clients (3 FGDs). Community-

held beliefs about family planning methods and their side-effects were mentioned as a barrier to women seeking LARC in all of the family planning provider FGDs. Some such beliefs mentioned during the FGDs included needing to bleed monthly to be healthy, that LARC methods could travel to other parts of the body, and that permanent infertility could result from LARC. Providers noted that they attempt to dispel these ‘misconceptions.’ Another related issue expressed was that LARC methods were too newly introduced in Zambia, in comparison to other methods such as the pill and injection, to garner much interest.

Male involvement

Participants frequently cited male partners as the reason for the decline in uptake, especially for CVCT. Men were viewed as being more fearful of testing in general, and, with women’s testing common through antenatal care, as feeling it unnecessary because they assumed their status was the same as their female partner’s. The need for men to better understand family planning methods and participate in family planning decision making was often mentioned by providers, along with these men’s reticence to visit clinics. Men were said to characterize healthcare in general, and family planning in particular, as women’s domain which limited men’s motivation to visit clinics and use services. Though it was generally agreed that men were ‘not interested’ in family planning, several providers shared anecdotes about husbands not allowing contraceptive use. Providers also stated that men were very uninformed, even suspicious of family planning, but that the program had increased their involvement and knowledge. The providers felt that men generally preferred long term methods once they were informed of them, including LARC and tubal ligation.

The stoppage of service provision on weekends was seen as a major barrier for men, as they were more likely to hold a regular job. The inability to visit the clinic at all, or once arriving waiting in a long queue, were cited as reasons for decreased participation.

System functionality

All FGDs expressed appreciation for the program and support for the work being done in their respective fields; no VCT counselors expressed a negative opinion of CVCT, nor family planning providers a negative opinion of LARC methods, and FGD participants often described reasons that these services were good for their clients. Providers also had a positive view of service integration, and mentioned that both receiving and sending referrals continue to be a part of their work.

Frustrations were expressed regarding incentives, staff shortages, and the difficulty in getting men to participate in couple services (both CVCT and family planning). One FGD mentioned that the halting of incentives created distrust of providers, with clients accusing them of keeping the incentive for themselves. It was expected that providers would complain about the amount of paperwork required to document their services, but this was an issue rarely expressed in the FGDs.

Providers also highlighted the difficulty transitioning from the period of program implemented to post-program service continuation, and requested that the government be more involved to ease that transition. Additionally, they expressed desire that ZEHRP keep them more apprised of the program timeline, so that they could prepare for its conclusion.

Table 1. Themes from thirteen focus group discussions

Theme	Frequency (explicit)	Example statement
Continuation of service provision	7 (4 VCT, 3 FP)	“Nothing has really changed. We are providing services.” <i>VCT counselor, Southern Province</i>
Drop in demand: reimbursement/incentives	8 (6 VCT, 2 FP)	“But then there were those incentives; it used to motivate to go and tell their fellow couples to come also to get those incentives.” <i>VCT counselor, Luanshya</i>
Drop in demand: operating hours	5 (3 VCT, 1 FP, In-charge)	“Most of the men, they only have enough time to come for CVCT during the weekends, since they are not going for work.” <i>VCT counselor, Ndola</i>

Drop in demand: beliefs about LARC	6 (6 FP)	<p>“They think they are not having their periods, so blood is accumulating, with time they will have problems. “ <i>FP provider, Lusaka</i></p> <p>“I think it’s just misconceptions, because some women say when you are hit on the site where it was input, it will [travel] to somewhere else even to the heart. “ <i>FP provider, Chingola</i></p>
Drop in demand: lack of community sensitization	12 (5 VCT, 6 FP, In-charge)	<p>“But at the moment, that’s why the number is going down, because there is no sensitization, there is no one managing them or preaching to them. That’s why they are no longer coming in numbers. “ <i>VCT counselor, Kitwe</i></p>
Decreased provider motivation	4 (4 FP)	<p>“But when there is an incentive, a person who is off duty, on leave, they will come to work for that incentive. “ <i>FP provider, Ndola</i></p>
Approval of service integration	12 (6 VCT, 5 FP, In-charge)	<p>“Family planning should be part of your counseling topic. Same with MC, you have to tackle all that, because you take advantage of these people that have come and you sell what you have. It is a product. We are testing, we are counseling, not only that, we are also providing family planning, which is an integral part to a healthy couple. “ <i>VCT counselor, Southern Province</i></p>
Male involvement	12 (5 VCT, 6 FP, In-charge)	<p>“The other thing is fear in the couples. Not knowing their status. So the other person will have fear so maybe let me know the status first, and if I’m negative that’s the time I go tell this other who is not here. Mostly that is men, so they will prefer to walk into the health facility by themselves, get themselves tested, and if they’re negative that’s when they will gather the courage to go tell the wife. “ <i>VCT counselor, Southern Province</i></p> <p>“...we don’t usually have a lot of couples during the working day, as most of them are working. So at least they used to have enough time during the weekend, after they knock off on Saturday so that they come access the services. “ <i>In-charge, Ndola</i></p>

Discussion

Significant drops in both LARC and CVCT uptake were experienced after the end of the program, which providers attributed to decrease in client demand. Though they stated that services had not changed, it appears that they were referring to the quality of service being maintained, because their perceptions of why demand decreased were tied to non-quality related changes in service provision. Frequent explanations for the drop more specifically included discontinued use of the incentive for both clients and providers, and lack of service provision on the weekends. This study of program sustainability shows that the program design wasn't successful in ensuring continuation of the desired outcomes of LARC and CVCT uptake after program completion. Despite service providers' assertions that their provision had not changed, the data shows CVCT uptake dropped to levels lower than when the program started in 2013 and LARC uptake decreased an average of 80%. Several factors appear to have led to that decrease in CVCT and LARC demand: fewer hours of service provision, lack of community sensitization, and lack of client reimbursement or incentives.

Hours of operation decreased in two ways. During program implementation, CVCT was offered on the weekends making it more accessible to men and thus couples. As noted in other studies of male involvement (Ditekemena et al., 2012; Morfaw et al., 2013; Sileo et al., 2016), and described by FGD participants, weekday services are more difficult for men to partake in than women due to their work commitments. Secondly, though only some FGD participants admitted that they had begun to leave work earlier after the program ended, the frequent mention of supplemental income for providers during the focus groups suggests that their willingness to put in extra effort without this supplement was lessened more widely than it was verbalized, as has also been documented in other studies (Willis-Shattuck et al., 2008; Witter et al., 2012). This decreased motivation was especially noted amongst family planning providers, who also mentioned that after the end of the program fewer providers were thus available for women to receive family planning methods. With little to no access on weekends for couples to receive

CVCT and family planning counseling, and then longer queues and fewer weekday hours to procure LARC, it is unsurprising that uptake dropped.

The stoppage of community sensitization, a major form of demand creation, is also an unsurprising factor in drop in demand. Though invitation cards and community outreach were effective in sensitizing during the campaign, the three years of the program appear to be insufficient for reaching health seeking behavior change in the community. Beliefs about sexual health existed before and during the program, and will likely continue to exist long after its completion, with both providers and clients living in a cultural and social environment which impacts their individual reproductive choices (C. F. Allen et al., 2010; Martin Hilber et al., 2012; Martinez Perez et al., 2015; Pool & Geissler, 2005). In particular, FGD participant statements regarding family planning, and LARC methods specifically (see Table 1, Theme 5), are consistent with the findings of studies in the region identifying the concerns of women experiencing amenorrhea (C. F. Allen et al., 2010; Glasier et al., 2003). Some cultural barriers and societal pressures may have been mitigated by regular sensitization during the program, which offered an alternative to the status quo (Ditekemena et al., 2012; Musheke et al., 2016). This alternative narrative was halted after sensitization messages stopped.

Finally, the reimbursements and incentives to CVCT clients cannot be overstated as a motivator for people to come in and request services. The nominal value of *chitenge* was still considered sufficient to provide a necessary final push for couples to seek service, as evidenced by continued demand for this incentive. Though there was no reimbursement or incentive for choosing LARC, the incentives for CVCT were likely an indirect factor in LARC uptake as well since family planning and sensitization was integrated into the HIV counseling. Men were viewed as supporters of long term methods in this study and others (Haddad et al., 2013; Stephenson et al., 2011), and they are less involved in family planning decisions now than during the program due to the drop in CVCT. Women are also receiving less information about LARC without their participation in CVCT. As such, the stoppage of incentives for CVCT likely impacted both it and LARC uptake.

Limitations

This study was designed to examine a specific program, so generalizability to other programs is limited.

Due to time and budget constraints, this study only collected data from service providers, and is thus missing the first-hand client perspective. As such, the abstracted data is subject to any issues that may exist in their collection and management, though these should be negligible in comparison to the large changes observed therein. Additionally, all qualitative research was conducted in English by a foreign researcher, and is susceptible to bias both through acquiescence bias by FGD participants and in analysis by the researcher.

Conclusions

As noted by the FGD participants, government continuation of some aspects of the program could have contributed to maintained levels of uptake in both CVCT and LARC, supporting the government's goals of decreased HIV transmission and fertility in the Zambian population. The program was successful in increasing the capacity of service providers, but their skills are no longer being fully utilized by the clientele as shown through low demand for services. Invitation cards are a relatively low cost outreach tool, and are proven effective during this program and others (Byamugisha et al., 2010; Matovu et al., 2014; Nyondo et al., 2014; Sileo et al., 2016; Theuring et al., 2016). Even incentives might be more cost-efficient in the long run, though a cost-benefit analysis considering the long-term costs incurred by the program and compared to the cost savings of HIV infections and unplanned pregnancies averted would be informative. The program proved that the intervention would contribute to national goals, but

continuation of all components is necessary for sustained positive outcomes such as those seen during program implementation.

Additionally, providers believe in the effectiveness of the program's components, as evidenced by their assertions during FGDs. Common sense suggests that interventions unsupported by providers are unlikely to be successfully promoted to their clients, a potential barrier not evident in this study.

While ZEHRP did engage the local government-based healthcare structure to implement the program, the long-term goals of the program would likely be served by inclusion of these stakeholders in program development and scale-back and/or termination. This multi-stage engagement would likely contribute to greater stakeholder investment (Butterfoss, Kegler, & Minkler, 2012; Wagemakers, Vaandrager, Koelen, Saan, & Leeuwis, 2010), and ease transition from ZEHRP program management to long-term post-program implementation.

Figures

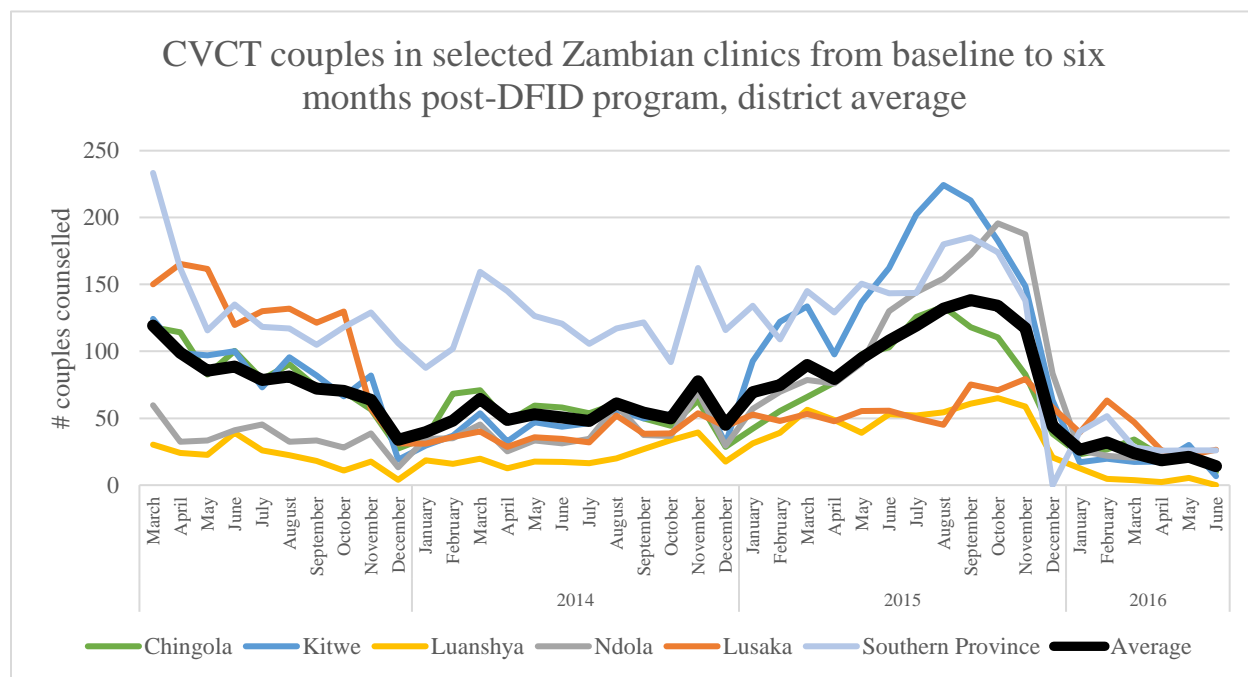


Figure 1: Number of couples receiving CVCT in selected clinics from the beginning of the program until 6 months after program completion, aggregated by district (Average change: $F=25.8$, $p<.0001$)

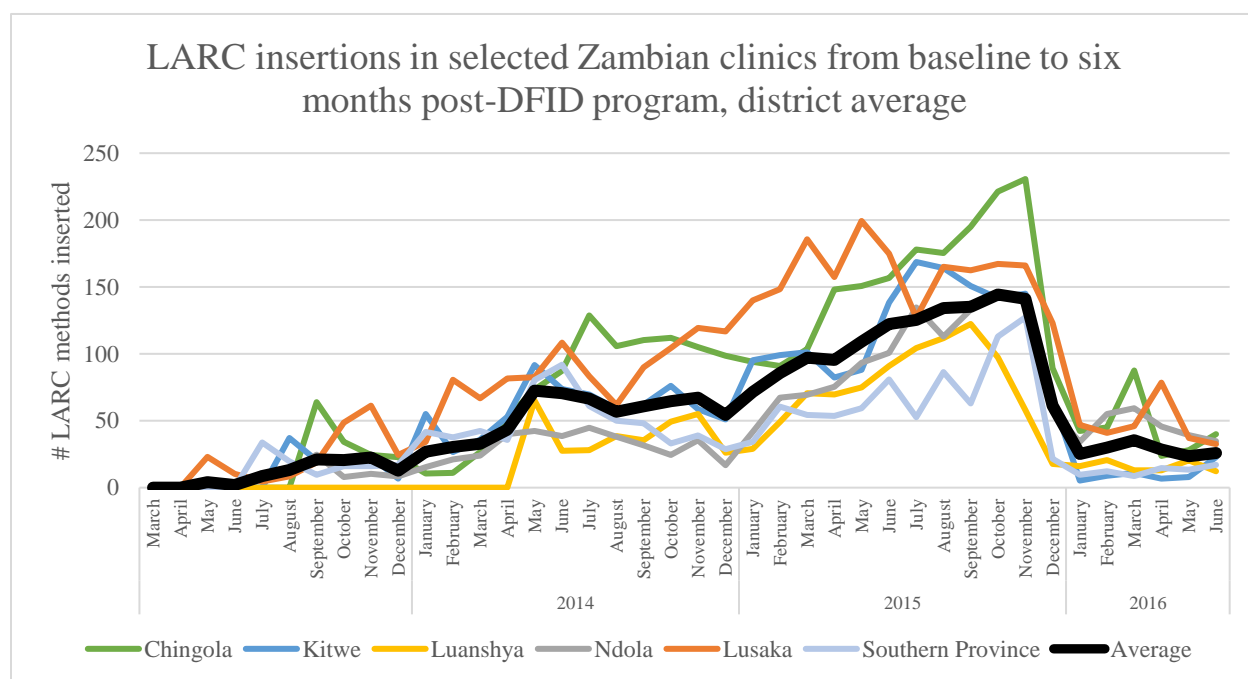


Figure 2: Number of LARC inserted in selected clinics from the beginning of the program until 6 months after program completion, aggregated by district (Average change: $F=52.7$, $p<.0001$)

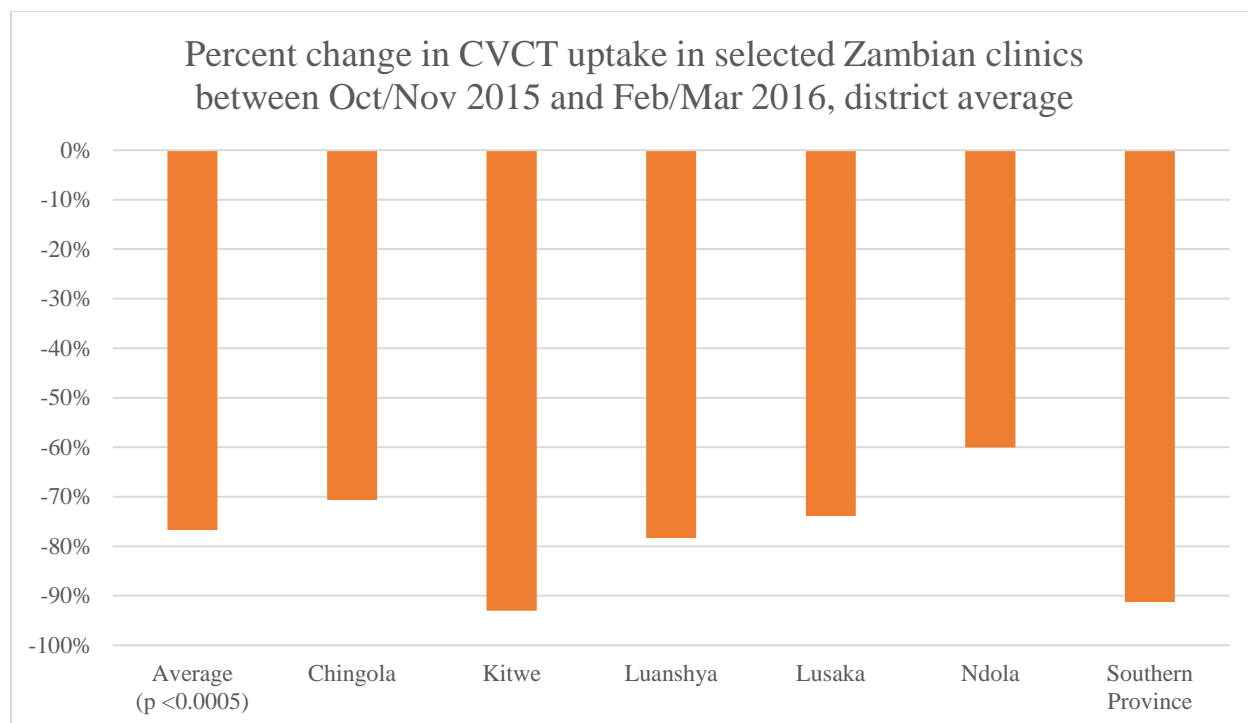


Figure 3: Percent change in couples receiving CVCT in selected clinics from program endline to post-program, aggregated by district

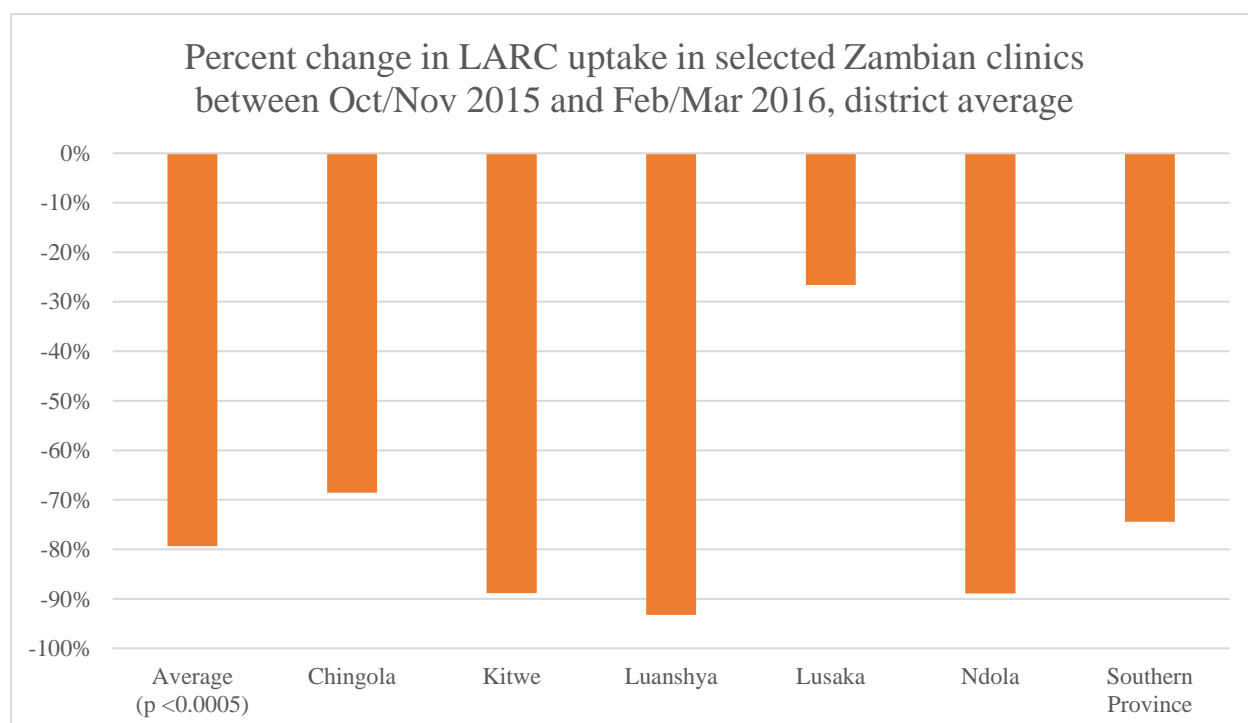


Figure 4: Percent change in women receiving LARC in selected clinics from program endline to post-program, aggregated by district

Table 2. Locations and dates of data collection

Clinic	Abstraction	FGD	Clinic	Abstraction	FGD
Ndola 1 Kaloko	7 June	20, 22 July	Chipata 1 Kabundi East	14 June	25 July
Ndola 2 Lubuto	8 June	20, 22 July	Chipata 2 Chawama	14 June	25 July
Ndola 3 Twapia	8 June	20, 22 July	Chipata 3 Kasompe	14 June	25 July
Luanshya1 Mikomfwa Health Centre	10 June	21-22 July	Kitwe 1 Kwacha	15 June	26 July
Luanshya 2 Mpatamatu	10 June	21-22 July	Kitwe 2 Mulenga	15 June	26 July
Luanshya 3 Chaisa	10 June	21-22 July	Kitwe 3 Zamtan	15 June	26 July
Southern Province 1 Kaleya	12 July	14 July	Lusaka 1 Chipata	28 June	8-9 July
Southern Province 2 Monze	13 July	14 July	Lusaka 2 George	28 June	8-9 July
Southern Province 3 Manungu	13 July	14 July	Lusaka 3 Matero	28 June	8-9 July

Chapter Four: Conclusions and Recommendations

Conclusions

As noted by the FGD participants, government continuation of some aspects of the program could have contributed to maintained levels of uptake in both CVCT and LARC, supporting the government's goals of decreased HIV transmission and fertility in the Zambian population. The program was successful in increasing the capacity of service providers, but their skills are no longer being fully utilized by the clientele as shown through low demand for services. Invitation cards are a relatively low cost outreach tool, and are proven effective during this program and others (Byamugisha et al., 2010; Matovu et al., 2014; Nyondo et al., 2014; Sileo et al., 2016; Theuring et al., 2016). Even incentives might be more cost-efficient in the long run, though a cost-benefit analysis considering the long-term costs incurred by the program and compared to the cost savings of HIV infections and unplanned pregnancies averted would be informative. The program proved that the intervention would contribute to national goals, but continuation of all components is necessary for sustained positive outcomes such as those seen during program implementation.

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development and scale-back and/or termination. This multi-stage engagement would likely contribute to greater stakeholder investment (Butterfoss et al., 2012; Wagemakers et al., 2010), and ease transition from ZEHRP program management to long-term post-program implementation.

Implications/Recommendations

To further understand the implications of this study, it would be beneficial to address some of the limitations noted in the results. As stated there, the findings are limited to input from service providers and their beliefs and understanding about how the program manifested. Before embarking upon a new program or re-introducing the one described in this study, it would behoove implementers to explore the client perspective. This would serve to validate assertions by providers and uncover further data which was not recognized and/or disclosed by the providers.

As noted in the conclusion above, incentives were considered to strongly impact program results and the consequent decline in uptake, and they may be a cost-effective way to achieve the GRZ health program goals of reduces HIV transmission and fertility. A detailed analysis is necessary to compare the long-term costs of the current HIV and fertility trajectory, and how it is anticipated to be affected by incentivized service uptake. Though prevention services are frequently cost-effective, behavior economics must be considered to ensure that those individuals who would not otherwise uptake service are the ones being reached, and not simply rewarding those who would participate in the absence of added incentive (Loewenstein, Asch, Friedman, Melichar, & Volpp, 2012; Loewenstein, Asch, & Volpp, 2013).

The other aspects of the program that were discontinued at its end could also be reinstated in an effort to return service uptake to desired levels. Though staffing shortages are likely a broader problem than just this study found, a restructuring of service hours could alleviate some of the issues regarding weekday provision and subsequent barriers to male clients. Sensitization could also be restructured or reintroduced. As mentioned previously, this is a relatively low-cost method of demand creation, and referrals continue to be a noted part of clinic services. The beliefs of the clientele are crucial to their desire to seek services such as CVCT and family planning, and a three-year program is unlikely to affect behavior change throughout a community with beliefs that do not support program goals.

Summary

In summary, this study found that the program intervention would contribute to national goals, but continuation of all components is necessary for sustained achievement of outcomes. Continued use of invitation cards, incentives, and an expansion of service hours should be explored.

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