Promoting Confidence: A case for training CHWs to become social marketers of injectable contraceptives in Ethiopia

Ndola Prata[1], Karen Weidert[1], Amanuel Gessessew[2]

Introduction

Ethiopia has made notable progress in increasing awareness and knowledge of family planning and is considered a success story among funders and program planners. Favorable political will, generous donor support, public-private partnerships, and the government's establishment of a health extension worker program have been identified as key factors in this success [1]. The Government of Ethiopia launched the Health Extension Program in 2004 [2] to deploy salaried health-care providers, Health Extension Workers (HEWs), to serve the primary health care needs of rural communities. Two HEWs are based in each rural health post and provide some community outreach, such as vaccination campaigns[3].

Starting in 2007, the government allowed HEWs to administer injectable contraceptives, which contributed to use of injectable contraceptive doubling from 10% in 2005 to 21% in 2011. Additionally, the government began training HEWs in the insertion of Implanon implants in 2009 [1,4,5]. Consequently, implant use increased from 0.2% in 2005 to 3.4% in 2011. Though HEWs have been an important addition to the public health sector, provision of family planning is just one of sixteen basic health services they deliver to large, widespread populations, resulting in limitations in family planning outreach efforts.

Community-based reproductive health agents (CBRHAs) are a valuable resource for bridging the outreach activities gap. They can support HEWs delivering family planning information and services, serving as extensions of the health posts and serving remote areas,

[1] Bixby Center for Population, Health and Sustainability at University of California, Berkeley
[2] College of Health Sciences at Mekelle University, Tigray, Ethiopia

which is important given the high percentage of the Ethiopian population living in rural areas [5]. CBRHAs are also necessary given the multi-faced clinical roles HEWs have to assume given health care worker shortages in the country. With declining fertility preferences and high unmet need for contraception, there is an opportunity to optimize community health workers such as CBRHAs and shift or share the task for family planning resupply methods, including injectable contraceptives.

Recognizing a need for community-based access to the injectable contraceptive depot medroxyprogesterone acetate (DMPA), we developed a service delivery model which combined community-based distribution (CBD) with social marketing and a drug revolving fund. This model grew from our desire to scale up a pilot study where CBRHAs were successfully trained to provide injectable contraceptives in Tigray, Ethiopia[6]. Incorporating private sector strategies such as willingness-to-pay, social marketing, and a drug revolving fund, the model aimed to create a sustainable contraceptive service delivery model that used CBRHAs as rural social marketing agents to distribute DMPA. The program addressed unanswered questions regarding affordability and sustainability of alternative mechanisms for extending injectable contraceptive services to remote, resource-poor areas.

The purpose of this paper is to present results from implementation of a CBD model designed to address long term availability of DMPA, supply and distribution of DMPA, and community health worker attrition. We draw on experiences from scaling up this model to illuminate lessons learned and factors which contributed to the programs' implementation, informing family planning strategies and practical application in other settings.

Background

In Tigray Ethiopia, even with the dramatic increase in contraceptive prevalence in the last decade, 22% of married women in Tigray have an unmet need for family planning – 15% for spacing and 7% for limiting. Unmet need among rural women is almost double that of urban women. Thus it is not surprising that there is a discrepancy between wanted total fertility rate (3.3) and actual total fertility rate (4.6) in Tigray, where over 80% of the population is considered rural [5]. Injectable contraceptives are the most commonly used method of contraception among women in Tigray. Approximately 21% of women are using a modern method of contraception, more than half of which are using injectable contraceptives. HEWs are the primary provider of the injectable contraceptive depot medroxyprogesterone acetate (DMPA) to rural women, offering free services at health posts [5]. However, barriers such as distance and confidentiality inhibit some women from seeking services, suggesting the need for inclusion of DMPA into community-based distribution (CBD) systems.

A prospective non-randomized community intervention trial in four village sites in two woredas of Tigray from 2007 to 2009 demonstrated that CBRHAs could administer injectable contraceptives to women in a rural region of Ethiopia with the same effectiveness, safety and acceptability as HEWs [6], findings which contributed to the WHO's support of the inclusion of community health workers in distributing injectable contraceptives [7]. Community health workers (CHWs) reduce family planning access barriers due to their placement within the community; however, the important role CHWs play in changing norms and influencing traditional structures in rural Africa as respected community members should not be overlooked when exploring importance of contraceptive CBD programs [8,9]. It has been demonstrated that CBD is more effective when combined with strategies to improve community perceptions and awareness of family planning [10]. In many low income countries, including Ethiopia, social

marketing has changed family planning behavior among the urban poor with branded contraceptive products and key marketing messages, all while partially or fully recovering costs from the sale of commodities [11]. However, this model has had limited application in rural settings.

Scaling up CBD in Tigray could improve rural access to injectable contraceptives. However, there are factors that affect long-term sustainability that need to be considered when expanding from a pilot to a large-scale community-health worker (CHW) programs. CBD has been shown to effectively meet the growing demand for contraceptives, but still remains one of the more expensive modes of service delivery in Africa[12]. Additionally, lack of appropriate remuneration as balanced with responsibilities has implications for both motivation and quality of work among CHWs [13]. Consequently, political will and financing, including incentives to CHWs, must be addressed to ensure sustainability of CBD programs[9,14].

After weighing the challenges to scale up CHW programs, we still recognized the need for large-scale community-based access to the DMPA, drawing on key strategies from the private sector to create efficiency and decrease costs of the standard CBD delivery model. By addressing willingness-to-pay, while incorporating social marketing and a drug revolving fund, the contraceptive service delivery model aimed to increase sustainability training CBRHAs to become rural social marketing agents of DMPA.

Methodology

Project Setting

Tigray is made up of five rural zones divided into forty-seven woredas. Each woreda is further divided into approximately twenty to twenty-five kebeles. Each kebele has a population size of 5,000 people or 1,000 households. Two zones participated in the project: Central and

Southern. The Central and Southern Zones are comprised of ten and eight woredas, with the number of women of reproductive age estimated in the zones to be 239,626 and 197,215, respectively.

Components of the community based distribution model

The model is depicted through a stepwise illustration in Figure 1. In the first step, two CBRHAs are identified from each participating kebele by community leaders and the district health office. They participate in a 4-day training, where they must demonstrate proficiency in counseling on all contraceptive methods, provision of DMPA and record keeping. After the training, CBRHAs are provided with a micro-loan of 25 DMPA injections from the drug revolving fund (step 2). The price of a single dose of DMPA credited to a CBRHA is 3 birr ($0.17). This is the subsidized cost of one dose of DMPA as procured from DKT-Ethiopia. CBRHAs provide DMPA to women for 5 birr ($0.29). This amount was determined using willingness-to-pay data during baseline data collection [15]. Of the 5 birr payment received for each injection administered, CBRHAs return 3 birr to the drug revolving fund and keep the remaining 2 birr ($0.12) (step 3). Funds returned to the system through sales of DMPA are managed by the Women's Association of Tigray (WAT), civil society organization with a leadership presence in every kebele, and used to purchase additional DMPA from DKT-Ethiopia.

The injectable contraceptive product used in this project was distributed by DKT-Ethiopia and is marketed under the brand name ***Confidence***. Social marketing was used to create awareness of the product and generate demand for the services of CBRHAs. CBRHAs received a marketing poster for display in their homes or communities. Having services at the doorstep increased client satisfaction (step 4). CBRHAs in the project were rural social marketers

generating demand through traditional community-based distribution, community meetings, women's meetings, and experience sharing among women (step 5).

Data collection

Monthly programmatic data on number of clients, injections provided and money collected was reported by CBRHAs and supervisors. A provider characteristics survey was completed by CBRHAs at time of training and after implementation of the program to gather demographic data and capture information on their experience with the program. Finally, a multi-stage, cluster random sampling household survey of women of reproductive age was conducted at baseline in 2011 and endline in 2014 in program areas. The surveys captured demographic, fertility and contraceptive use patterns among the target population to assess changes in family planning knowledge, access, use and preferences. Key indicators from this report were compared to the baseline report to determine the impact of the intervention. Human subjects approval was provided by the Center for Protection of Human Subjects (CPHS) at the University of California Berkeley (CPHS Protocol ID 2014-02-5995).

Data Analysis

All paper questionnaires from the provider characteristics surveys, as well as baseline and endline household surveys were processed at University of California, Berkeley (UCB) and entered into a database using Epi Info Version 3.5.3. All coding, labeling, and cleaning of the dataset took place at UCB. A native Tigrinya speaker in Berkeley, California assisted in the translation of additional response options. Data analysis was done at the UCB using STATA v13.

Program staff from Mekelle University in Tigray entered data from supervisor logs into Microsoft Excel and submitted monthly programmatic data files to program staff UCB, who conducted data analysis with STATA v13.

Results

CBRHA Characteristics

The majority of CBRHAs (N=621) completed a questionnaire to gather sociodemographic data and information on the previous experiences with family planning at the end of each training. Forty-two percent of CBRHAs participating in the project had between five and nine years of education, while 41% had secondary school or greater. The relatively higher levels of education found were likely a result of increasingly targeted recruitment of CBRHAs based on the characteristics found successful in the first year of implementation, including higher level of education. Twenty-six percent of CBRHAs were currently providing family planning at the time of training. Ninety-one percent of CBRHAs had never provided DMPA before, with 91% believing that providing DMPA would improve their services to the community and 96% feeling comfortable serving adolescents and unmarried women.

CBRHAs completed another survey to capture key characteristics and their experiences with the project after implementation in June 2014 (N=466). On average, CBRHAs were 45 minutes from the nearest government health post. CBRHAs reported spending approximately five hours per week marketing DMPA and 75% felt comfortable collecting payment for services. Nearly all CBRHAs (95%) felt the community accepted the project and 89% of married/cohabiting CBRHAs felt supported by their husband or partner. Most CBRHAs (85%) reported a leadership role in their community, mainly within the Women's Development Army, an initiative for social change which was created in response to high child mortality in Ethiopia with leaders working under the health extension program.

Programmatic

The project was implemented between September 2011 and June 2014 in 18 districts in Tigray, Ethiopia. The project was implemented in just three districts with 139 CBRHAs for the first 12 months to test the service delivery model and address any challenges before scaling up six-fold. Starting in year two of the project, the scale-up was accelerated with four trainings of 100-150 CBRHAs each. A total 626 CBRHAs were trained between October 2011 and October 2013 and 87% were still active at the end of the project and reported programmatic data. CBRHAs had 8,604 clients and an estimated 15,410 DMPA injections were administered. Nineteen percent of their clients were new to family planning and 25% of the clients were first time users of DMPA. The majority (87%) of the DMPA injections were paid for at the time of provision. The direct cost per couple-years protection was determined to be USD 2.96.

Impact

There was a 25% increase in contraceptive prevalence, with DMPA use largely responsible for this increase (Table 1). One quarter of women received DMPA from CBRHAs (Figure 2) and over 30% of women stated a preference for receiving family planning services from CBRHAs, a significant increase from baseline (275%). The largest increase in DMPA use was found among women aged 15-24, indicating the substantial impact of this project on young women (Figure 3). Among users of DMPA, 35% of women aged 15-24 years and 46% of women aged 25-34 years stated that CBRHAs provided their most recent DMPA injection.

Changes in the quality of family planning from baseline indicated services improved: 50% more women reported being told about side effects and what to do if they experience side effects; and 25% more women were told about other methods of contraception (Table 2).

Discussion

Meeting the contraceptive needs of rural women remains an important challenge. This project demonstrated a model incorporating CBD with social marketing offers an opportunity for expanding rural community access to DMPA, while recovering some program costs and compensating CBRHAs with proceeds from contraceptive sales. CBRHAs demonstrated their ability to make a contribution to improving rural access to DMPA with Tigray, especially among younger women. The willingness and ability of CBRHAs to reach adolescents was particularly important finding of this program, given that unmarried, younger women often face barriers to receiving family services in Sub-Saharan Africa, including provider restrictions[16 17,18].

However, anecdotal evidence from CBRHAs collected during supportive supervision visits indicated that adolescent clients were less likely to pay for services than older clients, which is not surprising given that youth might have less access to income in rural Tigray. The drug revolving fund was included in the program to enable services for all women, even those without means to pay or reach a health facility for free services. For the most part, CBRHAs referred women to health posts for services if they were unable to pay, but CBRHAs were given the discretion to provide free services without having to reimburse the cost of the injection. This was possible due to the drug revolving fund, which was set up to ensure continued DMPA stock in the community. However, the long-term sustainability of the drug revolving fund is dependent on women's response to paying for DMPA and the number of payment exemptions.

While the majority (87%) of injections were paid over the three-year implementation period, the continued desire and ability to seek out and pay for family planning is affected by socioeconomic factors. The women marketed through this intervention are predominantly rural farmers and therefore at risk for unpredictable economic shocks, leaving families to prioritize food for and the health of existing children, rather than family planning commodities. Thus, the

health and future outlook of the drug revolving fund is theoretically in danger if women are not able to pay the current price of the injection.

The drug revolving fund would also be threatened if the price of a DMPA injection increased to an amount that it is no longer affordable to women. As noted, DKT-Ethiopia subsidized the DMPA product for the project (US $0.17 per unit); however, a 2012 UNFPA analysis found the average cost of one injection globally to be $0.86 [19]. Thus it is important to consider this price differential when thinking about the findings from this analysis.

The total number of injections (15,410) provided over the course of the three year period was not as high as might be expected with over 600 CBRHAs participating in the project. This is partially due to the protracted scale up of the model over two years, but also indicative of the challenges associated with family planning service provision in rural areas. Decision to adopt contraceptives, unmet need and desired family size all influence demand for services.

The number of injections provided per CBRHA directly impacts her compensation, which was a factor that influenced the program design. CBRHAs receive 2 birr ($0.17) per paid injection, but there was not substantial evidence to determine the compensation that would continue to motivate CBRHAs to proceed. There is actually a strong legacy of volunteerism for community health in Ethiopia[20], which may have contributed to the low attrition of CBRHAs, even given small profit margins. Nonetheless, the importance of incentivizing CHWs to improve retention and performance has been well documented [14] and should be further explored in regards to this contraceptive service delivery model in Tigray.

It is also critical to understand this service delivery model within the larger context of family planning service delivery in Tigray; specifically, within the context of a social marketing

model to determine the material contribution beyond injections, including increases in knowledge and change in community norms surrounding family planning.

In the 2011 Ethiopia Demographic Health Survey, 23% of women and men of reproductive age in Tigray had never heard or saw a family planning message. Moreover, 64% of women of reproductive age who were not using contraception reported that they had never discussed family planning with a field worker or at a health facility[5]. By training health workers in the community to provide messages on the benefits of family planning, community beliefs are influenced and demand for family planning will likely grow over time as myths are dispelled and side effects understood.

Another underlying key to the success of this model was that it expanded upon the existing health service delivery platform in Tigray, essentially creating a public-private partnership between the health posts and CBRHAs. Linkages with the community were supported through this model by including the Women's Association of Tigray to manage both the drug revolving fund and provide financial supervision of the CBRHAs. The Women's Association of Tigray has a strong presence from the regional level down to each kebele in Tigray. This allowed for both centralized purchasing of DMPA, as well localized management of microloans to CBRHAs. The model also further improved community linkages with public health services through referrals and monitoring. HEWs supervised CBRHAs clinical activities, which enabled project monitoring with minimal additional impact. Most CBRHAs were leaders in the Women's Development Army and therefore already met with HEWs on regular basis to share updates on their activities.

The program model expanded services of the public health system for a fee women were willing to pay given convenience and privacy. With monitoring systems already incorporated

into the activities of the Tigray Regional Health Bureau, the program was able to continue after the three-year funding period ended with minimum transition efforts. Additionally, the Tigray Health Bureau has plans to further expand in the region, based on high acceptance of the program model by the community, CBRHAs, and district health offices as noted during a stakeholders meeting to disseminate the results.

Limitations

The Ethiopian calendar is substantially different than the Gregorian calendar. CBRHAs recorded data followed the Ethiopian calendar, with the intention that monitoring and evaluation program team would translate this data into a 12 month calendar. The transferring of data from CBRHAs to program staff was prone to error because of calendar issues combined with untimely submission of data due to remote location of many CBRHAs. Ultimately, we limited our results to total injections, which did not permit us to analyze trends and month-by-month breakdown between kebeles and CBRHAs and would have likely provided additional key information for future programing. Program planners can tailor interventions to match family planning preferences and create more sustainable contraceptive service provision with greater impact. However, long-term sustainability of CBD should be addressed when designing programs to expand access. Attrition among community health workers and maintaining supply of contraceptives are two challenges. Robust recruitment and training strategies increased engagement, commitment, and comprehension among CHWs. Nonetheless, the results from household surveys at baseline and end line suggest that CBRHA in this model made a significant contribution to family planning in the region.

Conclusion

The drug revolving fund provides a mechanism to ensure continuous community-level supply of DMPA, given demand and ability to pay for injectable contraceptives remain constant. The model suggests lower cost per CYP than a standard CBD program. Rural CBD-social marketers can be important agents to help bring change and support for family planning.

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Figure 1. Model for combining community-based distribution with social marketing in Tigray, Ethiopia

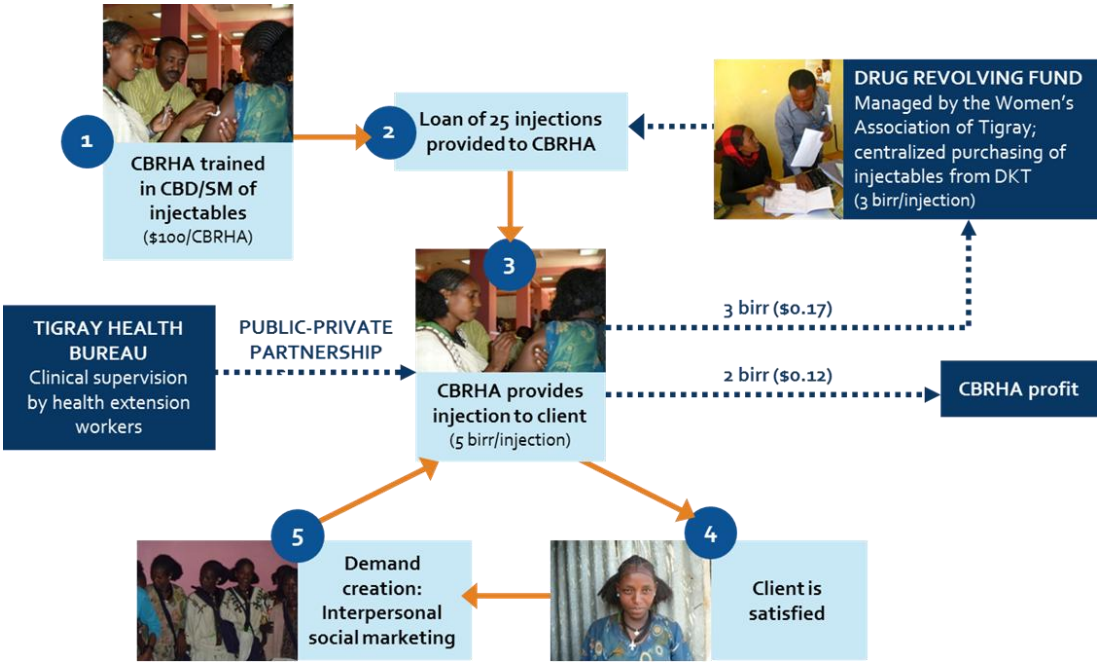
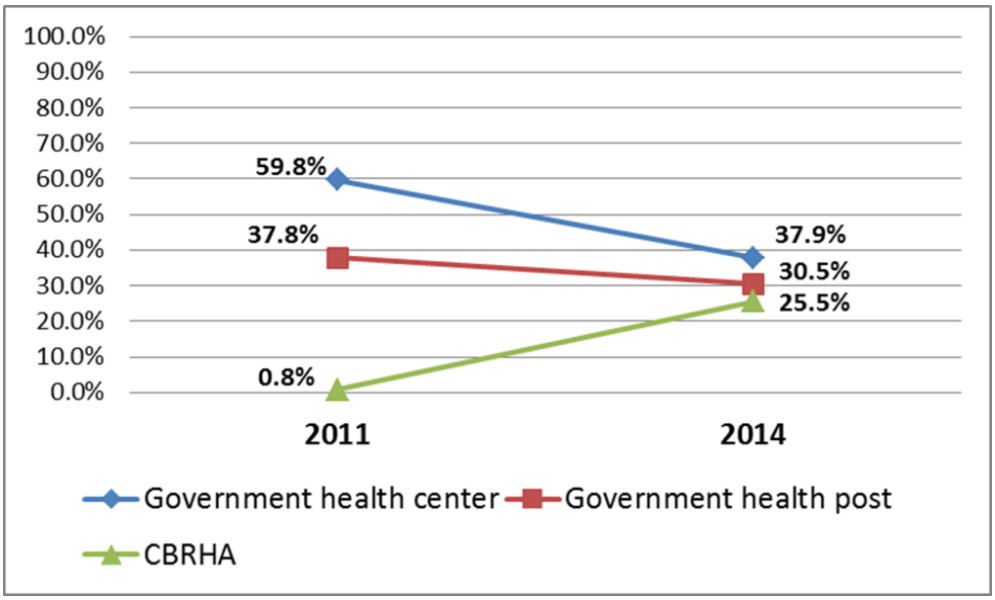


Table 1: Changes in key family planning indicators among women of reproductive age from project baseline to endline

	2011 (N=1490)	2014 (N=1501)	
	%	%	% change
Contraceptive prevalance	30.1	37.7	25**
Current use of DMPA	20.6	27.2	32**
DMPA contribution to method mix	68.5	72.1	5
CBRHAs as recent source of DMPA	0.8	25.5	3085***
CBRHAs as preferred source of contraception	8.3	31.1	275***
Unmet need	16.4	11.9	-28*

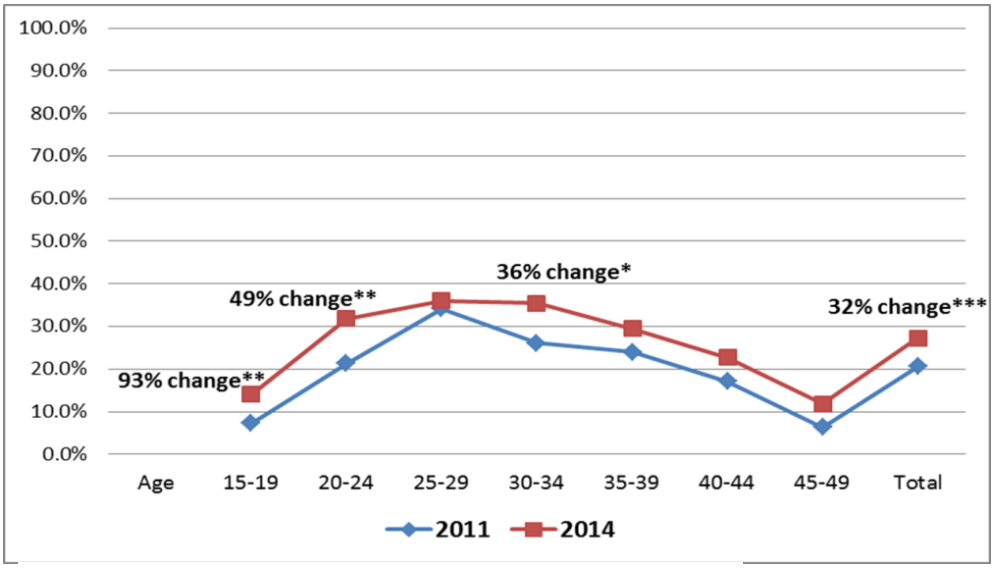
* p-value<01; **p-value <001; ***p-value <0001

Figure 2. Changes* in provider type from whom women received DMPA injections among women who used DMPA between 2011 and 2014.



*All changes were highly significant (p-value <0.0001)

Figure 3. Changes* in DMPA use by age group 2011 to 2014



* p-value <0.05; **p-value <0.01; ***p-value 0.001

Table 2: Changes in quality of family planning services provided among women of reproductive age who are currently using contraception

	2011 (N=448)	2014 (N=566)	
	%	%	% change
Told about side effects	46.8	68.7	47*
Told what to do if experience side effects	43.5	63.1	45*
Told about other methods	65.4	82.9	27*

*p-value <0.0001