Counsellors' Experience During Training and Home Based HIV Counselling and Testing in Zomba District, Malawi

L Kalumbi[1, 2*] , S Kumwenda[2] and K Chidziwisano[2]

1. St Luke's Mission Hospital, P.O. Box 21, Zomba, Malawi.
2. University of Malawi, The Polytechnic, Department of Environmental Health, P/Bag 303, Chichiri, Blantyre 3, Malawi
* Correspondance to lkalumbi@poly.ac.mw,

Abstract

Introduction

In 2007, St Luke's Mission Hospital initiated a district-wide Door to Door HIV counselling and testing (HCT) programme in Zomba district. The intent of the programme was to provide quality HCT services to people in their homes and effectively those found to be HIV positive referred to appropriate services.

Methodology

This was a cross sectional study using a questionnaire consecutively administered to a sample of 105 counsellors who had resided in the community for a period of over one year. The questionnaire sought to establish, knowledge gained, experiences and recommendations on how the programme has been implemented and assist running of similar future programmes. Data analysis was done manually using both qualitative and quantitative methodologies.

Results

We report that nearly 23% of the counsellors thought that during their training as a door to door HCT counselor they had benefited in learning to working with communities; an aspect they found to be highly applicable in discharge of their duties. The major setbacks during the training were lack daily allowances, less amount of time spent on understanding child counselling and the manual used was difficult to follow. Over 32% of the counsellors were satisfied with the participation of their clients during pre-test counselling sessions, however, the major challenge they had was the misconception that they were blood suckers, a view reported by nearly 17% of the counsellors. Close to 72% reported not to have met any problems during post-test counselling compared to 24% who reported to have found challenges.

Conclusion

The study has revealed that there is a need to re-look child children counselling especially in training door to door HCT counsellors. It has also revealed a prevalent allowance culture despite the benefits of training. The common challenges were refusal of test results and failure to understand discordance. Misconceptions may still exist in the community regarding anything dealing with removing blood. There is still need for more information regarding discordance especially among couples in the community.

Introduction

Globally, Human immunodeficiency Virus (HIV) counselling and testing (HCT) is a key intervention for HIV prevention and a critical approach for life-sustaining treatment and care programmes[1-4]. For the past years, different methods of HIV counselling and testing have been applied, including provider-initiated testing and counselling as part of medical care, and client-initiated or voluntary testing and counselling (VCT)[5]. High quality counselling and testing is vital to reducing the HIV epidemic. There is increasing evidence that counselling and testing reduces reported risk behavior and prevents new infections[6]. Counselling and testing uses short, client-centered counselling that can be effective in increasing condom use and preventing sexually transmitted diseases (STDs)[7,8]. It is common knowledge that the ever changing needs in HIV prevention, care and treatment, many service providers developed different curricula and trained counsellors in varied contents and training period in the areas of antiretroviral therapy (ART), prevention of Mother to Child Transmission (PMTCT), home based counselling and testing, basic preventative care, routine counselling and testing (RCT) in clinical settings, and prevention with positives (PWP) counselling[6-9]. Scientific evidence has shown various public health benefits of HIV testing such as reduction in risky sexual behavior, and bringing HIV infected individuals to HIV care, treatment and support[10]. Despite the many advantages of HCT, low access and limited reach of facility-based HIV testing services have been impediments to global attempts to prevent HIV transmission and scale-up of HIV care and treatment at population level[11]. Home-Based HIV Counselling and Testing (HBHCT) has the potential to address the challenges of limited access to testing. Global concern over the gap between the needs and the reality has led to urgent calls for increased access to HCT services[12]. Recent years have witnessed new initiatives to increase access, including incorporating HCT into routine healthcare and providing HCT within people's homes (Home-Based HIV Counselling and Testing or HBHCT). National and international policies have also been revised to incorporate provider-initiated testing and counselling (PITC)[13]. Within the context of home based HCT, counsellors reach out to the community, providing counselling and testing within client's home. HBHCT has been lauded for making testing convenient. It has been commended for its success in increasing uptake, with acceptance rates of over 90%[14 –17]. The high uptake of HBHCT is associated with the elimination of costs for clients travelling to VCT centres and the removal of stigma associated with going to such centres[14-15,18]. Other benefits of HBHCT include the opportunity to reach the entire household with HIV interventions[1]. While the advantages of home based HCT need not to be overemphasized, inadequate knowledge and need to understand other processes compels further study[19-20]. More especially concerns surrounding knowledge of counsellors in HBHCT, strength and challenges experienced by counsellors and involvement of children in HBHCT. Services provided by HCT counsellors should be evaluated regularly to assure quality and be provided with support and ongoing training[21-23]. Measuring the quality of HIV counselling and testing in HIV prevention programmes, and the possible factors that influence quality, is therefore very important[21]. Currently, few published studies have evaluated the feasibility and experience of counsellors in delivering HBHCT to clients in rural communities of Malawi. This study therefore, was done to further evaluate the feasibility and interaction of counsellors with clients during HBHCT. The information generated will add to the body of knowledge towards community-based interventions for HIV testing in Malawi.

St Luke's Mission Hospital with funding from the National AIDS Commission (NAC) initiated a district-wide Door to Door (home based) HIV counselling and testing (HCT) programme in Zomba district south of Malawi in December 2007. The hospital implemented this

programme in partnership with Zomba District Assembly and the Department of Community Health of the Malawi College of Medicine. The intent of the programme was to provide quality HTC services to over 400 000 people residing in Zomba in their homes for a period of over two years effectively those who were found to be HIV positive so that they may be referred to appropriate services. The programme endeavored to alleviate most barriers to accessing HCT services for the whole population. Also by drawing of blood (after consent), and then interviewing programme participants, this programme sought to understand how and why respondents accepts the blood draw and consented to a home visit by a counselor to learn their test results and the feasibility of such a district-wide approach. Training for the counsellors was organized annually and included sessions on the current level of knowledge of HIV and prevention with particular emphasis on the use of HCT, basic preventative care for the HIV+. Information was given on attendant benefits of HCT and in basics of HIV pre-and post-test counselling and HIV rapid testing. The second training was that of Resident Community Mobilizers (RCMs). These were trained for about 2 weeks in basic counselling skills. A curriculum for this training was developed in consultation with Ministry of Health (MoH) and other stakeholders. It is also noteworthy that some of the RCMs were those who already attended some courses either in counselling or health education and communication skills and were already working as community volunteers on other programmes. The RCMs were helping the counsellors during the outreach visit to the villages. They sensitized and mobilized the community for home-based HCT before the outreach team arrives. They also helped with record keeping, offering ongoing support, formation of post-test clubs (PTCs) and in referring of HIV positive people for more care and support. The third training was for counsellors. St Luke's Mission Hospital conducted a staggered recruitment of well-motivated and qualified cadres. This cadre was trained for 3 weeks as counsellors. The Malawi national curriculum for training of counsellors in HCT was used with technical input from the MoH. These were also trained as the testing assistants, the training aimed at acquainting them with the programmes HIV testing algorithms. The Malawi national curriculum for training testing assistants in HIV T&C was used.

Method

Study setting and population

A cross sectional house to house survey was conducted in Zomba district which has a total population of 667,773 [24]. The study was conducted in 2007. The target population was adults, sexually active adolescents and all exposed children (about 400,000 people). Zomba district is divided into 8 Traditional Authorities (TAs), 2206 villages and 166,722 households. Each village is headed by a village headman who participates in mobilization of the village for Home Based door-to-door HCT. Each Traditional authority is divided into several programme communities each made of 8-12 villages. From each programme community, one volunteer known as Resident Community Mobilizer (RCM) who was permanently residing in that community was selected to work as a counselling aide. Counsellors trained in HTC offer the services. Aided by the RCM, counsellors systematically moved within the village from one household to the next offering HTC until the whole village was covered. During its inception, the programme had 19 HTC counsellors and implemented staggered approach in recruitment of counsellors. During study period, the number of counsellors had risen to 196. In administration of the counselor exit interview questionnaire, a consecutive sampling methodology was implemented since some counsellors were nearing the end of their contracts. In total 105 counsellors were interviewed.

Data collection

The Counselor Supervisors were primarily responsible for administering the questionnaires and subsequent retrieval of the filled questionnaires from the counsellors. The data collection tool was an interview form which consisted of sections counselor training experiences, counselor experience on identification of households and counselling and testing. The questions were in open-ended format to allow counselor to freely share the experiences they encountered and suggest how the programme can be implemented better.

Data analysis

Data analysis was done manually for qualitative and excel was used for quantitative. Both qualitative and quantitative methods were employed. The analysis was done by identifying recurrent patterns and themes from both the conceptual framework and thorough reading of the questionnaires. After identifying the recurrent patterns data were aggregated based on related themes. Quantitative analysis was then employed to ascertain themes which were common.

Results

Table 1: Demographic characteristics of respondents

	Category	Number (%)
Age Category	18-24 years	11 (10.5%)
	25-45 years	79 (75.2%)
	45+	15 (14.3%)
Gender	Male	57 (54.3%)
	Female	48 (45.7%)
	Married	83 (79.0%)
Marital Status	Separated	5 (4.8%)
	Widowed	2 (1.9%)
	Single	15 (14.3%)
Education Level	No Schooling	0 (0)
	Primary	0 (0)
	Secondary	84 (80%)
	Post-secondary	21 (20%)

Table 1 shows the demographic parameters of the study participants. There were 54.3% males whereas females constituted 45.7%. None of the participants had primary education; they all had secondary and post-secondary education, 80% and 20% respectively.

Counselor Training

As a requirement, any HCT counselor is supposed to undergo a rigorous training in counselling and testing. Before counsellors were initiated into the programme as a mandate were required to go through the process of training for at least a minimum of 3 weeks administered by MoH. We attempted to solicit from them knowledge gained, their experiences and recommendations regarding the training they had. We asked our counsellors to list the most exciting thing about their training as a door to door HCT counselor.

Table 2 show the attributes that counsellors found to be exciting in their period of training.

Table 2: Attributes which counsellors mentioned to be exciting in their training

Attribute	Number with attribute	Number Sampled	Percentage %	95% CI
Knowledge about HIV/ AIDS	18	105	17.1	11.4-24.4
Learned community, Interaction	24	105	22.9	15.2-32.1
Giving test results with Empathy	11	105	10.5	5.3-18.0
Knowledge on Counselling	21	105	20.0	12.8-28.9
Testing	11	105	10.5	5.3-18.0
Interaction with others	4	105	3.8	1.0-9.5
Good facilitation	5	105	4.0	1.6-10.8
Others (role play, certification, Sensitive issues discussed)	9	105	8.6	N/A

More counsellors (22.9%) mentioned learning working with communities as the main priority attribute they found exciting during their training as counsellors. Box one is a summary of some of the excerpts from the counselor questionnaires.

Box One: Summary of excerpts from counselor exit interview questionnaires

"…it was knowledge of transition from Voluntary Counselling and Testing (VCT) services to home-based HTC services…"
"it (training) helped me to be friendly and tolerant with people in the community so as to make the work easier."
"the most exciting thing about my training was that I learned on how to work with all ages or groups or different tribes of people.
"the access of working with the community, counselling of different couples and the youths"

What was encouraging also was that a significant majority of the counsellors felt that they had gained knowledge on HIV/AIDS. Though few, some counsellors thought that the training was a platform where sensitive issues were discussed. Counsellors were significantly less likely to mention 'interaction with fellows' and 'good facilitation' as the main attribute they found exciting compared to other attributes.

In trying also to gather information from them of which attributes of training did they find boring, we asked our counsellors to mention at one aspect of their training as a door to door HCT counselor which they found to be boring. Out of the 105 counsellors who took part in the exercise only 49 gave a response to this question. The other 56 councilors did not respond or did not find anything boring. Hence analysis is based on those who responded to the question. Table 3, is a summary of attributes which counsellors reported to have found boring during their training as door to door HTC counsellors.

Table 3: Attributes which counsellors found to be boring during their training

Attribute	Number with Attribute	Percentage %
Non-response	56	53.3
No allowances	13	12.4
Dry Blood Spot (DBS) Collection	5	4.7
Inadequate time	22	21.0
Manual difficult	6	5.7
Others (Facilitators not good, Condom demonstration)	3	2.9

Almost 12.4% (n=13) of the counsellors prioritized absence of allowances during their period of training as the main boring aspect during their training. What is noteworthy is the significant proportion of counsellors who prioritized inadequate time allocated for both theory and the practicum as the main boring aspect of the training. Box 2 is excerpts from the questionnaire regarding the inadequate time that was apportioned to training.

Box Two: Excerpts on inadequate time allocated

"Time was not enough for each session"

"Days for training as how we can do the village especially door to door was not enough"

"with the theory it was fine but we did not have time arranged as a door to door HTC counselor field practical"

We further asked our counsellors to mention which aspect of the training could have been done better to improve training. Of the 105 counsellors sampled 84 responded to this question. Table 4 below is a summary of what counsellors felt could have been done better to improve training.

Table 4: Aspects which counsellors felt could have improved their training

Attribute	Number with Attribute	Percentage %
Non response	21	20.0
Child counselling	23	21.9
Increase training days	19	18.1
Couple counselling	4	3.8
Refresher courses	6	5.7
Update data tools	12	11.4
Provide allowances	7	6.7
More time on PMTCT	4	3.8
Re-editing door to door manual	3	2.9
Dry Blood Spot Collection	4	3.8
Other (include training on nutrition)	2	1.9

Table 4 shows that 21.9% (n=23) of the counsellors prioritized the allocated time for training on child counselling as not enough and felt that there is need to pay more attention to training on child counselling. About 18.1% (n=19) felt that in general time for training as an HTC counselor need to be increased. Importantly, above 11.4% (12) of the counsellors felt that there was need to improve the data gathering tools. About 3.8% (n=4) mentioned that they needed more time on PMTCT. Though few, 1.9% (n=2) of the counsellors thought that the training should adequately cover food and nutrition.

Identification of Households

Being a novel idea in Malawi, we asked our counsellors to provide us their experiences in the process of identifying the households. We first asked if they found the whole process of identifying the households from meeting with the group village headman and influential leaders, sensitization campaigns, self- introduction to door-to-door approach after mobilization any easier. Out of 105 counsellors, 90.5% (n=95) 95% Confidence Interval 83.2-95.3%) felt that the process was well compared 9.5% (n=10) (95% Confidence Interval 4.7-16.8) who felt the process was difficult. Hence counsellors were significantly likely to find the process easy. We further asked those who found the process of identifying households difficult to provide reasons; two major reasons were stated, first, some households were found in two villages hence it was difficult to classify such households and secondly, re-tracing households was difficult in case of tracing missed household members. We asked our counsellors to outline which aspect of household identification they found to be fine. It was found that 61.9% (n=65) provided at least one aspect which they found to be fine. The rest did not give response. Table 5, below is a summary of attributes which counsellors found to be fine during the process of household identification.

Table 5: Summary of fine attributes reported by counsellors

Attribute	**Number with Attribute**	**Percentage %**	**95% CI**
Non response	40	38.1	28.1-51.9
Community mobilization	16	15.2	1.1-31.3
Village boundary demarcation	17	16.2	1.2-32.5
Door to door method	28	26.7	12.6-40.8
Other	4	3.8	NA

Almost 26.7% (n=28) thought that the one household-to-another method was most fine attribute they found during the process of household identification. About 15.2% (n=16) and 16.3% (n=17) felt community mobilization and demarcation of village boundary respectively to be the most fine aspects during village identification process.

We wanted to also know that after being in the field for over one year, how they think household identification should be conducted to minimize any challenges they had faced during the process of identifying households. Table 6 is a summary of what counsellors think should be done to minimize any challenges during the process of household identification.

Table 6: Summary of what counsellors think should be done to improve household identification.

Attribute	Number with Attribute	Percentage %
Non response	52	49.5
Pre-test group counselling	10	9.5
Household Identification label	16	15.2
Community mobilization	4	3.8
Total number of households	8	7.6
Proper village boundaries	12	11.4
Other	3	2.9

Slightly above 15% (n=16) of the counsellors thought that there was need for household identification labels probably on top of household posts. This was necessary for re-tracing missed household members during the first visit and for subsequent visits; sees Box 3. Among the counsellors who responded, nearly 11.4% (n=12) prioritized the need for proper village boundaries among other issues. Some households would fall into two villages as such it was difficult to classify them. What is noteworthy is also the proportion of counsellors 9.5% (n=10) who felt the best was to improve pre-test group counselling, though they did not suggest how.

Box Three: Summary of excerpts for household identification numbers

"household identification could have been done better, because others they say they are not ready to get tested, so identification labels would assist us to know the remaining households"

"i think it is good to put identification number of the households in order to make follow up easier"

"if there would be the chance of taking the number of population census at a house, this can reduce the challenges and it would be easy to identify the households"

Counselling and Testing

We also wanted to establish the experiences our counsellors had in counselling and testing. One of the questions we asked our counsellors was to give any positive attribute they found when counselling clients before the test. There were 71/105 respondents; 32.4% said that people were participating and even contributing ideas during their pre-test counselling sessions, 29.6% said that people had basic knowledge in HIV/AIDS whereas 12.7% said that people were willing to know about HIV/AIDS, 14.1% said that clients were open and 11.3% thought they were welcomed. We further wanted to know any challenges that our counsellors had during the time of pre-test counselling. We had 91 out of 105 respondents. 18.7% [17/91] counsellors said clients had misconceptions about them being blood suckers, 16.4% [15/91] of the respondent counsellors felt that clients did not have enough knowledge about HIV; see box four. 9.9% counsellors said that the main problem they had were moody clients. 7.7% [7/91] counsellors said that clients had primary focus in testing and did not want pre-test counselling.

Box Four: Summary of excerpts about lack of enough knowledge about HIV/AIDS

"some people don't know how to differentiate between HIV and AIDS for that matter it takes time to discuss"

"the knowledge of HIV came to the community in a negative way, so it was very difficult to the community to differentiate between HIV and AIDS so people though if they are positive definitely they are suffering from AIDS"

We asked our counsellors to mention if they if met any challenges during the time of testing clients. There were 62/105 counsellors who responded to this question. Table 7 is a summary of the challenges that counsellors met during the process of testing.

Table 7: Summary of the challenges counsellors mentioned to have met during testing

Attribute	Number with Attribute	Percentage %
Non response	43	41.0
Fear of pain when pricking	27	25.7
Blood suckers/ DBS collection	10	9.5
Couple refusing test results	4	3.8
Fear of results	8	7.6
Lack of other test requirements	5	4.8
Other	8	7.6

Surprisingly a significant proportion of our counsellors who responded to this question said that the one important major challenge they faced during testing was fear of pain when being pricked (25.7%), About 9.5% said that the most important challenge was that clients thought of them as blood suckers especially when collecting dry blood spots (DBS), fear of test results was another challenge that counsellors faced during testing. Note also that some counsellors mentioned receiving test results as a couple was another major challenge that they faced during the process of testing.

We further asked our 105 counsellors if they had met any one important challenge during post-test counselling. Above 72% (n=80) reported not to have met any problems during the process of testing compared to nearly 24% (n=25) who reported to have found challenges. We further asked those who reported to have encountered challenges during post-test counselling to mention one important reason. About 9/25 said that clients refused their test results especially when positive, 6/25 said that clients had problems to understand discordance (see box five), 4/25 reported that clients did not pay attention to post-test counselling especially if they were found non-reactive due to excitement, 2/25 had problems dealing with emotional clients in the event of a reactive test.

Box Five: Excerpts from counsellors who reported to have faced challenges explaining discordance

"discordant couples do not understand, fortunately John Hopkins project plays a role in helping them"

"some clients were not able to accept their results especially discordant couples; they said it cannot happen in the same marriage one to be reactive and one non-reactive"

"if it was a discordant couple disagreements were rising between them if one who is reactive is woman and some clients were refusing to receive referral forms"

Discussion

This research adds to the increasing evidence that HIV counselling and testing reduces reported risk behavior and prevents new infections[7]. Measuring the quality of HCT in novel programmes such as door to door testing programme, and the possible factors that influence quality, is therefore paramount. In the absence of carefully designed studies to

evaluate the training the of HCT counsellors, it remains a predicament to ascertain if indeed the time allocated for HCT counselor training is inadequate as claimed by almost 45% of our counsellors. According to Centre for Disease Control, counsellors should be evaluated regularly to assure quality and be provided with support and ongoing training[23].

The significant proportion of the counsellors who thought 'lack of allowances' during their training was one most important setback during their training is a worrying situation. It reveals the allowance culture in Malawi. Could the lack of allowances have affected their commitment to training as counsellors and ultimately their delivery? There is a need to impress upon the trainees of the essence of their training with regard to discharge of their duties.

The fact that above some of the counsellors thought that there is a need re-look child counselling underscores the importance of reviewing HCT counselor training with regard to child counselling. It clearly demonstrates that counsellors are ill-equipped in the area of child counselling which is critical especially in programmes like door-to-door counselling and testing where counsellors meet clients in their respective homes. Critically counsellors also felt that they need more time in Prevention of Mother To Child Transmission (PMTCT). Poor counselling and lack of subsequent support for the infant feeding decision almost inevitably leads to mixed feeding[25-26], which has been shown to increase the risk of mother to child transmission (MTCT)[27]. Considering counsellors in door-to-door HTC programmes live right in the community information about PMTCT is crucial for successful implementation of such robust programmes.

The fact that certain counsellors mentioned that they felt that one most important problem they had met during their counselling sessions was lack of basic knowledge about HIV/AIDS from their clients is contrasting to the current knowledge regarding HIV/AIDS awareness. Regarded as a mature epidemic it is expected that awareness about HIV/AIDS should be wide spread. This clearly demonstrates the need for counsellors to never assume that clients are aware of HIV/AIDS in their counselling sessions. The 2004 MDHS show that there is a strong association between the respondent's educational level and knowledge of AIDS prevention[28].

There is still need for more information about discordance. In fact our counsellors reported that one of the problems they encountered was to explain discordance to couples. An earlier study within the same study area (Umar & Masiye, [2008] unpublished) showed that spouses are bound to react differently to discordant test results depending on which gender is found positive and negative reactions are more pronounced in men. If counsellors are thoroughly equipped with knowledge about discordance it would ease the apparent tensions that arise among couples. In other countries like Uganda they have a special curriculum on discordant couples[29].

Conclusion

The study has revealed that there is a need to re-look at children counselling especially in training door to door HCT counsellors. It has also revealed a prevalent allowance culture despite the benefits of training. Though done well the study has shown that household identification can be improved further. The study has also shown the misconceptions may still exist in the community regarding anything dealing with removing blood hence need to demystify such misconceptions before roll out in future programmes. The study has also shown the need for more information regarding discordance.

Acknowledgements

We would like to thank Professor Cameron Bowie for his constructive comments the time this study was done.

References

1. Menzies N, Abang B, Wanyenze R, et al.: The costs and effectiveness of four HIV counselling and testing strategies in Uganda. AIDS 2009, 23:395-401.

2. Wanyenze RK, Nawavvu C, Namale AS, Mayanja B, Bunnell R, Abang B, Amanyire G, Sewankambo NK, Kamya MR: Acceptability of routine HIV counselling and testing, and HIV seroprevalence in Ugandan hospitals. Bull World Health Organ 2008, 86(4):302-309.

3. Irungu TK, Varkey P, Cha S, Patterson JM: HIV voluntary counselling and testing in Nakuru, Kenya: findings from a community survey.HIV Med 2008, 9(2):111-117.

4. Nakanjako D, Kamya M, Daniel K, Mayanja-Kizza H, Freers J, Whalen C, Katabira E: Acceptance of routine testing for HIV among adult patients at the medical emergency unit at a national referral hospital in Kampala, Uganda. AIDS Behav 2007, 11(5):753-758.

5. World Health Organization HAD: Towards universal access: Scaling up priority HIV/AIDS interventions in the health sector. Geneva, Switzerland: WHO; 2010.

6. Weinhardt LS, Carey MP, Johnson BT, Bickham NL. Effects of HIV counselling and testing on sexual risk behavior: A metaanalytic review of published research, 1985–1997. Am J Public Health 1999;89:1397–405.

7. Kamb ML, Fishbein M, Douglas JM,et al. Efficacy of risk reduction counselling to prevent human immunodeficiency virus and sexually transmitted diseases. Journal of the American Medical Association. 1998;280:1161-1167.

8. Fleming P, Byers RH, Sweeney PA, et al. HIV prevalence in the United States, 2000. Presented at the 9th Conference on Retroviruses and Opportunistic Infections, Seattle, WA; February 24-28, 2002.

9. Centre for AIDS Prevention Studies. What is the role of counselling and testing in HIV prevention? Available from http://www.caps.ucsf.edu

10. Sekandi JN, Sempeera H, List J, Mugerwa MA, Asiimwe S, Yin X, Whalen CC: High acceptance of home-based HIV counselling and testing in an urban community setting in Uganda, 2011. licensee BioMed Central Ltd. Accessed on: http://www.biomedcentral.com/1471-2458/11/730

11. Bateganya MH, Abdulwadud OA, Kiene SM: Home-based HIV voluntary counselling and testing in developing countries. Cochrane Database Syst Rev 2007, (4):CD006493.

12. Obermeyer CM, Osborn M: The utilization of testing and counselling for HIV: A review of the social and behavioral evidence. Am J Pub Health 2007, 10:1762-1774.

13. WHO: Guidelines on provider-initiated HIV counselling and testing in health facilities. Geneva: WHO; 2007.

14. Wolff B, Nyanzi B, Katongole H, et al.: Evaluation of a home-based voluntary counselling and testing intervention in rural Uganda. Health Policy Plan 2005, 20:109-116.

15. Were W, Mermin J, Bunnell R, Ekwaru JP, Kaharuza F: Home-based model for HIV voluntary counselling and testing. Lancet 2003, 361:1569.

16. Matovu JK, Kigozi G, Nalugoda F, Wabwire-Mangen F, Gray RH: The Rakai Project counselling programme experience. Trop Med Int

Health 2002, 7:1064-1067.

17. Helleringer S, Kohler HP, Frimpong JA, Mkandawire JRN: Increasing uptake of HIV testing and counselling among the poorest in Sub-Saharan countries through home-based service provision. J Acquir Immune Defic Syndr 2009, 51:185-193.

18. Yoder PS, Katahoire AR, Kyaddondo D, Akol Z, Bunnell R, Zaharuza F: Home-based HIV testing and counselling in a survey context in Uganda. Calverton: ORC Macro; 2006.

19. Nabalonzi JK, et al.: Home based HIV counselling and testing promotes HIV status disclosure, partner testing and adherence to therapy. AIDS. XVI International AIDS Conference; 2006.

20. Bateganya M, Abdulwadud OA, Kiene SM: Home-based HIV voluntary counselling and testing (VCT) for improving uptake of HIV testing. Cochrane Database of Systematic. Reviews 2010.

21. Chopra M, Doherty T, Jackson D, Ashworth A. Preventing HIV transmission to children: Quality of counselling of mothers in South Africa. Acta Pædiatrica 2005; 94: 357-363

22. Holtgrave DR, Pinkerton SD. Economic implications of failure to reduce incident HIV infections by 50% by 2005 in the United States. Journal of Acquired Immune Deficiency Syndromes. 2003;33:171-174.

23. Centre for Disease Control and Prevention. Revised Guidelines for HIV Counselling, Testing, and Referral. Morbidity and Mortality Weekly Reports. 2001;50.

24. National Statistical Office. Population and housing census [Internet]. Zomba, Malawi: National Statistical Office of Malawi; 2008. Available from: http://www.nsomalawi.mw/index.php/2008-population-and-housing-census.html

25. Koniz-Booher P, Iliff P, Willumsen J, de Wagt A, Labbok M. HIV and infant feeding: A compilation of programmatic evidence. New York: QAP/URC; 2003.

26. Shapiro RL, Lockman S, Thior I, Stocking L, Kebaabetswe P, Wester C, et al. Low adherence to recommended infant feeding strategies among HIV-infected women: results from the pilot phase of a randomised trial to prevent mother to child transmission in Botswana. AIDS Educ Prev 2003;15:221–30.

27. Coutsoudis A, Pillay A, Kuhn L, Spooner E, Tsai EW, Coovadia H. Methods of feeding and transmission of HIV-1 from mothers to children by 15 months of age: Prospective cohort study from Durban, South Africa. AIDS 2001;115:379–87.

28. National Statistical Office, ICF Marco. Malawi Demographic and Health Survey [Internet]. www.nsomalawi.mw. 2010 [cited 2013 Jul 14]. Available from: http://www.nsomalawi.mw/images/stories/data_on_line/demography/MDHS2010/MDHS2010%20report.pdf

29. Strengthening HIV Counselor Training. 2008-2009 Annual Report. Ministry of Health, Uganda.