

## REVIEW OF ANTENATAL-LINKED VOLUNTARY COUNSELING AND HIV TESTING IN SUB-SAHARAN AFRICA: LESSONS AND OPTIONS FOR GHANA

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### SUMMARY

Voluntary counselling and HIV testing has become an integral part of HIV prevention and care programs in many countries in sub-Saharan Africa. A number of interventions offer potential to reduce mother-to-child HIV transmission. These interventions, including antenatal and or intrapartum administration of antiretroviral drugs require the integration of voluntary counselling and HIV testing for pregnant women into antenatal care. Ghana's strategic framework for HIV control calls for the integration of voluntary counselling and HIV testing to antenatal care nationwide. It sets as target, the year 2005 when VCT would be widely available and accessible in the country. This paper reviews medline-indexed publications on antenatal-linked VCT programs of sub-Saharan Africa. Four critical themes were used in the medline search. These are acceptability, rates of return for test, disclosure of results vis-à-vis confidentiality and cost effectiveness. The growing consensus on these issues are discussed in relations to the findings of a recent study conducted among 270 pregnant women in Navrongo in the Kassena-Nankana district of northern Ghana. Suggestions are made to guide the on-going pilot VCT and prevention of mother-to-child programs in Ghana. It is also suggested on the basis of the review and the findings of the Navrongo study that Ghana should explore options likely to promote universal access and overall acceptability. These include couple counselling, guarantee of confidentiality, free testing and continuum of care for mothers who are test positive.

**Keywords:** VCT, HIV, pregnant women, Ghana, sub-Saharan Africa.

### INTRODUCTION

Voluntary counselling and testing (VCT) for HIV is the process by which an individual undergoes counselling to enable him or her to make an informed choice about being tested for HIV. According to the Joint United Nations Programme on HIV/AIDS (UNAIDS), VCT has a pivotal role to play within a comprehensive range of measures for HIV/AIDS prevention and support, and should be encouraged. VCT has thus become an integral part of HIV prevention and care programs in many countries. Services have evolved to reflect developments in the treatment and care for HIV-related illnesses, and with this, the recognition of VCT as important in reducing HIV transmission<sup>1</sup>.

Globally, an estimated 800,000 children became infected with HIV in year 2001. The majority (87%) of them occurred in sub-Saharan Africa<sup>2</sup>. Most of these children were infected through mother-to-child transmission (MTCT). Rates of MTCT of HIV-1 vary from 14% to 42% in different studies and regions. Most MTCT of HIV-1 occurs during delivery and breast-feeding; the highest rates of MTCT are found in breastfeeding populations<sup>3</sup>. A number of interventions offer potential to reduce vertical transmission of HIV in developing countries. These interventions, including antenatal and or intrapartum administration of antiretroviral drugs, require the integration of voluntary counselling and HIV testing for pregnant women into antenatal care<sup>4,5</sup>.

Voluntary counselling and testing, when incorporated into antenatal care will offer organizational convenience and can be expected to lead to the efficient use of resources. Expectant mothers who get tested can be appropriately counselled on infant feeding and family planning, two activities that are routinely carried out at antenatal clinics.

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Ghana's strategic framework for HIV control calls for the integration of voluntary counselling and HIV testing into antenatal care nationwide. It sets as target, the year 2005 when VCT would be widely available and accessible in the country<sup>6</sup>. To this end, pilot studies in VCT and prevention of mother-to-child transmission (PMTCT) are being conducted in some selected districts in the country.

A review of published accounts on VCT programs in other sub-Saharan African countries can provide useful lessons for the design of effective, sustainable and client-friendly testing programs in Ghana. A perusal of the literature brings to the fore, four issues critical to making antenatal-linked VCT a useful tool in HIV/AIDS control. These are the acceptability of services, rate of return for test results, disclosure of results vis-à-vis confidentiality and cost-effectiveness.

## METHOD

To contribute to on-going discussions on the operationalization of antenatal-linked VCT services in Ghana, we undertook a medline search of original articles on antenatal-linked VCT programs in sub-Saharan Africa. We used key words and phrases, such as VCT, ANC, acceptability, confidentiality and cost. We reviewed the full text of articles that specifically addressed the four issues in the sub-Saharan context.

## RESULTS

### Acceptability of VCT

Acceptability is the starting point for the success and impact of any health intervention. A number of studies have used both quantitative and qualitative methods to assess the acceptability of VCT in sub-Saharan Africa. In Uganda, Pool *et al*<sup>5</sup> in a qualitative study, found that although almost all the women in their study were willing to take an HIV test and to reveal their HIV status to the maternity staff, they were anxious about the confidentiality of the results of their test. They also feared that once the maternity staff knew their serostatus, they might refuse to take care of them. Many of them expressed concern about the possibility of being blamed, separated or subjected to domestic violence once their husband knew they were HIV positive. Pool and colleagues concluded that although VCT was acceptable in principle, community sensitization and male involvement should be integrated into VCT programs. In contrast, Coulibaly *et al*<sup>7</sup> in a study that was linked to a mother to child HIV intervention program in Abidjan, found high test refusal rates among the pregnant women who were approached. Most of the women who

took the test also refused to come back for their results. Those who refused the test indicated that they thought they were HIV positive and confirmation through testing could accelerate the progression of the disease. They were also afraid of the reaction of their relatives, particularly their spouses. Some of the women did not consider pregnancy to be an appropriate time to do an HIV test. Cartoux *et al*<sup>4</sup> made similar findings in a study in Abidjan and Burkina Faso. They found that fewer women in Burkina Faso than Abidjan (7.6% versus 22%) refused to do the test. The most common reason for their refusal was 'to seek agreement of the partner'. In Bobo-Dioulasso, higher education level of partner was an important predictor for test refusal. Ignorance of the main mode of HIV transmission (sexual) in Abidjan and the main means of prevention (condom) in Bobo Dioulasso were associated with test refusal. In an international survey of voluntary HIV testing programs in developing countries in 1997, Cartoux *et al*<sup>8</sup> concluded that, in spite of many obstacles, VCT was feasible and acceptable for pregnant women aiming to reduce their risk of transmitting HIV to their children. Acceptance rates of between 53%-99.7% were reported from various sites in sub-Saharan Africa. Given the fact that all the findings were made in the context of research, where VCT and other interventions were offered free of charge the researchers cautioned that the acceptability of VCT and other similar interventions were likely to differ when it came to be implemented as part of public health services in the various countries surveyed. Wilkinson *et al*<sup>9</sup> in a study in Lusaka, Zambia, also reported acceptance rates of between 72-90% among antenatal clinic attendants. Their findings, however, contrasted with those of Fylkesnes *et al*<sup>10</sup> who, in a study in some selected rural and urban areas in Zambia, found most of the study populations to be unwilling to undergo VCT. In an account of their experiences, they cautioned against the overemphasis on high acceptance rates. In the light of their findings, and those of other researchers in other African countries, they questioned the validity of using the number of people who get tested as measure of the acceptability of VCT services.

Increasingly, the importance of the caution given by Fylkesnes *et al*<sup>10</sup> is being appreciated as more insight is gained into the operationalization of VCT in Africa. The rates of return for test results seem to be emerging as an important measure of the "true" acceptability of VCT services. This lends credence to the concept of "overall acceptability" as applied by Cartoux *et al*<sup>8</sup>. Overall acceptability takes into consideration both pre and post-test acceptability. It makes room for an indi-

vidual, once counselled, to have time to reflect on the decision whether or not to go ahead with the test, and even after testing, whether or not to want to know its outcome. Such reflection is made independent of the health or research establishment, and is therefore likely to approximate a true and considered desire of that individual. It is in this respect however that questions have been raised about same-day testing programs and the appropriateness of applying the concept of overall acceptability to such programs<sup>10</sup>.

### Rate of returns for results

In Kenya, Temmerman et al<sup>11</sup> studied the effect of maternal HIV infection on pregnancy outcome in Nairobi. They tested pregnant women for HIV and syphilis after individual counselling and consent, and offered post-test counselling to HIV-positive women. The women were advised to inform their partners of their HIV status. The consequence of this advice has been an eye-opener to many researchers and VCT program managers. Eleven women who informed their partners were either chased away from their homes or replaced by other women; seven other women were beaten up while one committed suicide. These events compelled the investigators to change the advice they gave to the women regarding the collection of test results. They were no longer given specific appointment times for the collection of test results. It was made a more optional undertaking and tested women could call at any time to collect their results. The effect was that, only 35% of the women came back for their results, in contrast to over 90% previously. The change in advice and the effect it had on the return rates, showed that a good number of the women came to collect their results only because they had been told to do. They perceived that whoever told them to come and collect their results on a specific day, was a medically trained person who was supposed to know what was good for them. Some therefore collected the results even though they did not want to. Similar findings have been reported from studies in other African countries<sup>12,13,14,15</sup> Temmerman and colleagues therefore submitted that, a woman who underwent VCT reserved the right not to know her test result, and that this right ought to be respected by researchers and health workers<sup>11</sup>. However, when one considers that women who perceive themselves at higher risk of being HIV-positive are more likely to fail to return to collect their test results<sup>4,16,17</sup> then it becomes a source for concern that the exercise of the right not to know one's result could rather work against the success of intervention programs that are based on VCT. How are HIV-positive women going to benefit from MTCT prevention programs if they are not going to come back for

their test results? In most circumstances, the rate of return for test results depends on what a woman perceives to be the usefulness of knowing the result of the test<sup>10</sup>, and for those in stable relationships, there is the additional consideration to be made of whether she is in a position to inform her husband or partner about the test. The increasing use of rapid test kits in antenatal-linked VCT would, over time, make redundant the issue of failure to return for test results. Its use would however not obviate the problem of how women, once tested at ANC, would be able to disclose the result of their tests to their spouses and other relatives i.e. if they need to.

### Disclosure of test results

An important component of VCT programs is encouraging clients to inform partners of their serostatus. Yet many clients do not disclose results to partners<sup>12</sup>. Indeed the impact of the advice given to HIV-positive pregnant women to enable them make well-informed decisions about their sexual and reproductive life can be measured through the proportion of women who inform their male partners about the positive results of their own HIV test, and who choose to lead responsible sexual life based on the use of condoms and any other modern contraceptive method. Failure to involve husbands or partners in counselling and testing has been observed to be associated with low rate of HIV testing sharing and a poor use of contraceptive methods<sup>18</sup>. Researchers in a study in Burkina Faso, followed a cohort of 306 HIV-positive women over an average period of 13.5 months and found that only 18% of women informed their partners about their HIV status<sup>19</sup>. Contraceptive use remained low despite the regular counselling and advice. The incidence of pregnancy in the cohort also remained comparable with the rate in the general population. The fear of domestic violence was the main reason why these women refused to disclose their positive HIV test result to their partners.

In an MTCT trial in Dar es Salaam, Tanzania only 16.7% of pregnant women who were enrolled informed their spouses about their positive HIV serostatus. The main reasons given were the fear of stigma, divorce and violence<sup>14</sup>. Quite similar findings have been reported from studies in other sub-Saharan African countries<sup>12,18,19</sup>.

There has been a suggestion that rate of test results disclosure depends on the nature of counselling protocol that is adopted before and after testing. Grinstead and colleagues<sup>13</sup> in a multicenter study in Nairobi, Kenya, Dar es Salaam, Tanzania and Port of Spain, Trinidad adopted what was de-

scribed as a “client-centered” HIV-counselling model. This model was said to be ideal for cultural diversity and took into account the specific cultural and environmental factors of each site. Participants in the study, who were enrolled as couples, were encouraged to share their test results in the counselling session. Indeed, using this approach, Grinstead and colleagues recorded a high disclosure rate of 91%. They however observed that participants in serodiscordant female-positive couples (where the female is HIV positive and the male is negative) were most likely to report the break-up of sexual relationship and therefore pointed to the greater vulnerability of this group of women. The issue of test results disclosure remains an evolving one. Experiences vary but increasingly point towards greater partner involvement in the counselling and decision-making process. In the context of antenatal care, this would require attracting husbands or partners to accompany spouses to clinic sessions at least once during the pregnancy. In societies where women suffer abuse, social inequality and injustice, testing pregnant women for HIV at antenatal clinics has both socio-cultural and ethical implications. Informing a partner about one’s HIV seropositive status can be a major undertaking for most women in these societies and could be an important determinant of the various observations made in the cited VCT programs.

It should also be borne in mind that the integrity of the health delivery system stands to be challenged if communities begin to associate social disharmony and family tension with the outcome of a health service intervention.

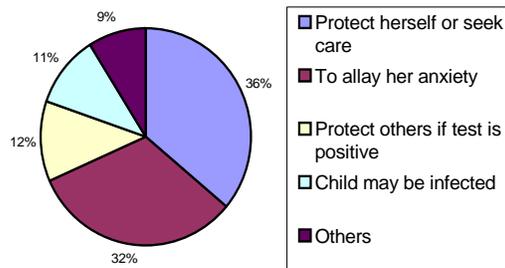
### Cost effectiveness

Integrating VCT into antenatal care services can potentially lead to substantial increase in cost to the health systems of most developing countries. Forsythe and colleagues<sup>20</sup> in a recent study that assessed the cost and willingness of VCT clients in rural Kenya to pay for services however found that integrating VCT services into existing health centres could substantially reduce cost, with the use of health centre staff likely to lead to additional cost reductions. They found that most clients were willing to pay at least \$2 for the service but less than 5% of clients indicated they would be willing and able to pay for the service if the full cost were to be charged. They concluded that full cost recovery was unlikely to be feasible and that at best, partial cost-recovery could be achieved. Sweat *et al*<sup>21</sup>, in another VCT cost-effectiveness study in Kenya and Tanzania, found that although respondents in the study population had indicated a willingness to pay \$1.64 (Kenya) and \$5.11 (Tanzania) for VCT

service, their patronage of the service at these prices was low. Patronage picked up only when the costs were reduced to \$0.50 and \$1.00 respectively. The available evidence suggests that substantial subsidy will be required to sustain universal access to VCT for pregnant women in sub-Saharan African countries.

### Kassena-Nankana district in northern Ghana

The findings of a study conducted in April 2002 in the Kassena-Nankana district (KND) into the perception and attitude of pregnant women towards voluntary counselling and HIV testing suggest that the experiences in antenatal-linked VCT programs on other sub-Saharan countries are unlikely to be significantly different from that to be experience in programs in Ghana. It was found that out of the 270 pregnant women interviewed at the antenatal clinic in April-March 2002, 92.6% (95% CI 88.8 to 95.4) indicated a willingness to be tested for HIV. Significantly however, only 51% (95% CI 45.0 to 57.2) of the pregnant women considered HIV testing to be useful<sup>22</sup>. A probable implication of this is that most of these women would offer themselves to be tested but would fail to come back for their results if given the option. This would reinforce the position held by Fylkesnes *et al*<sup>10</sup> and the experience of Temmerman *et al*<sup>11</sup> that the important measure is not how many people get tested (acceptability) but how many out of those tested willingly return for their test results (overall acceptability). The questionnaire used in the KND study also enquired into the reasons why pregnant women considered HIV testing to be useful. Figure 1 gives a summary of the reasons given.

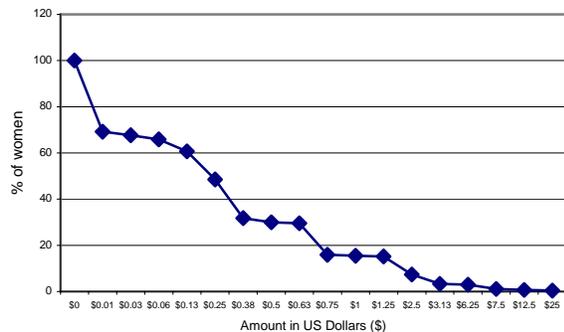


**Figure 1** Reported reasons why respondents thought it was useful for a pregnant woman to know her HIV status (n=138)

It is to be noted that most of the women gave reasons that either related to the desire to protect oneself from infection (in case the result was negative) or the urge to seek care in case one was already infected. It is significant to point out that concerns about the unborn child being infected constituted only 11% of response. The pregnant women were

therefore as much concerned about their own health as the health of their unborn children. Voluntary counselling and HIV testing programs designed solely for PMTCT are unlikely to meet the aspirations of such women. It was also found in the KND study that a significant predictor of a pregnant woman willingness to get tested (OR 13.28, 95% CI 3.96 to 44.54) and indeed her perception that getting tested was useful (OR 3.16, 95% CI 1.08 to 10.48), was her consideration whether or not she will be able to disclose the result of the test to her husband. Spouses of pregnant women, especially in traditional communities such as the KND are likely to exert strong influence on attitudes towards antenatal-linked VCT. Early and active partner participation through couple counselling is an option worth serious consideration. There is indeed a large and growing body of evidence from the literature in support of this approach<sup>23</sup>.

The near inevitability of subsidising the cost of VCT services was also borne out in the Navrongo study. About 30% of pregnant women wanted the test to be offered for free. The median cost considered affordable was \$0.25 (¢2000 at the time) and at \$1.00, only 15.6% of the women would consider the test to be affordable (Figure 2)<sup>24</sup>.



**Figure 2** Graph showing how the percentage of women who consider amount to be charged affordable declines with increase in the amount (n=270)

The target set in Ghana's strategic framework is challenging. The on-going pilot programs are crucial to defining the way forward in ANC-linked VCT in Ghana. It is therefore important that data (qualitative and quantitative) from these pilot sites be systematically collected and analysed to generate much needed information to guide an evidenced-based approach to the scaling up of antenatal-linked VCT in Ghana. The experience of already-established programs in other sub-Saharan countries and the findings of the Navrongo study suggest that Ghana considers strategies likely to promote universal access and overall acceptability.

The options in this regard include couple counselling, guarantee of confidentiality, free testing and continuum of care for pregnant women who test positive.

## CONCLUSION

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## REFERENCE

1. World Health Organization. Voluntary counselling and testing for HIV infection in antenatal care: Practical consideration for implementation. WHO/HIV/AIDS and Sexually Transmitted Infections Initiative, 1999
2. Joint United Nations Programme of HIV/AIDS (UNAIDS). Report on the global HIV/AIDS epidemic. Geneva: UNAIDS Dec 2001.
3. Gibb DM, Tess BH. Intervention to reduce mother to child transmission of HIV infection, new developments and current controversies. *AIDS* 1999; 13(suppl A): S93-102.
4. Cartoux M, Msellati P, Meda N et al. Attitude of pregnant women towards HIV testing in Abidjan, Cote d'Ivoire and Bobo Dioulasso, Burkina Faso. DITRAME study group 9 (ANRS 049 Clinical Trial). Diminution de la transmission mere enfant du VIH. Agence Nationale de Recherches sur le SIDA. *AIDS* 1998; 12: 2337-2344.
5. Pool R, Nyanzi S, Whitworth JA. Attitude to voluntary counselling and testing for HIV among pregnant women in rural south-west Uganda. *AIDS Care* 2001; 13: 605-615.
6. Ghana AIDS Commission. Ghana HIV/AIDS strategic framework 2001-2005. Accra.
7. Coulibaly D, Msellati P, Dedy S, Wellfens-Ekra C, Dabis F. Attitude and behaviour of pregnant women towards HIV screening in Abidjan (Ivory Coast) in 1995 and 1996. *Sante* 1998; 8: 234-238.
8. Cartoux M, Meda N, Van de Perre P et al. Acceptability of voluntary HIV testing by pregnant women in developing countries: an international survey. Ghent international

- working group on mother-to-child transmission of HIV. *AIDS* 1998;12: 2489-2493.
9. Wilkinson D, Wilkinson N, Lombard C et al. On-site HIV testing in resource poor settings: is one rapid test enough? *AIDS* 1997; 11: 377-381.
  10. Fyllkesnes K, Haworth A, Rosensvard C, Kwapa PM. HIV counselling and testing: overemphasizing high acceptance rates a threat to confidentiality and the right not to know. *AIDS* 1999; 13: 2469-2474.
  11. Temmerman M, Ndinya-Achola J, Ambani J, Piot P. The right not to know HIV-Test results. *Lancet* 1995; 345: 696-970.
  12. Maman S, Mbwapo J, Hogan M, Kilonzo G, Sweat M, Weiss E. History of partner violence is common among women attending a voluntary counselling and testing clinic in Dar es Salaam, Tanzania. [Abstract TuOrC308]. XIII International AIDS Conference, Durban, South Africa 2000; 381.
  13. Grinstead O, Gregorich S, Choi K, Coates T. The voluntary HIV-1 counselling and testing efficacy study group. Positive and negative life events after counselling and testing: the Voluntary HIV-1 counselling and testing efficacy. *AIDS* 2001; 15: 1045-1052.
  14. Kilewo C, Massawe A, Lyamuya E et al. HIV counselling and testing of pregnant women in sub-Saharan Africa-Experiences from a study on prevention of mother-to-child HIV-1 transmission in Dar es Salaam, Tanzania. *J Acquir Immune Defic Syndr* 2001; 28: 458-462.
  15. Karim Q, Karim S, Coovadia H, Susser M. Informed consent for HIV testing in South Africa hospital: Is it truly informed and truly voluntary? *Am J Pub Hlth* 1998; 88: 637-640.
  16. Ladner J, Leroy V, Msellati P et al. A cohort study of factors associated with failure to return for post-counselling in pregnant women: Kigali, Rwanda, 1992-1993. *AIDS* 1996; 10: 69-75.
  17. Lindan C, Allen S, Carael M et al. Knowledge, attitudes and perceived risk of IADS among urban Rwandan women: relationship to HIV infection and behaviours change. *AIDS* 1991; 5: 993-1002.
  18. Nebie Y, Meda N, Leroy V et al. Sexual and reproductive life of women informed of their HIV seropositivity: a prospective cohort study in Burkina Faso: *J Acquir Immune Defic Syndr* 2001; 28: 367-372.
  19. Keogh P, Allen S, Almedal C, Temahagili B. The social impact of HIV infection on women in Kigali, Rwanda: A prospective study. *Soc Sci Med* 1994; 38: 1047-1053.
  20. Forsythe S, Arthur G, Ngatia G, Mutemi R, Odhiabo J, Gilks C. Assessing the cost and willingness to pay for voluntary HIV counselling and testing in Kenya. *Hlth Policy Plan* 2002; 17: 187-195.
  21. Sweat M, Gregorich S, Sangiwa G et al. Cost-effectiveness of voluntary HIV-1 counselling and testing in reducing sexual transmission of HIV-1 Kenya and Tanzania. *Lancet* 2000; 356: 113-186.
  22. Baiden F, Remes P, Baiden R, Williams J, Hodgson A, Boaleart M, Buve A. Voluntary counselling and HIV testing for pregnant women in the Kassena-Nankana district of northern Ghana: Is couple counselling the way forward? *AIDS Care* (in press).
  23. Painter TM. Voluntary counselling and testing for couples: a high-leverage intervention for HIV/AIDS prevention in sub-Saharan Africa. *Soc Sci Med* 2001; 53: 1397-1411.
  24. Baiden F, Remes P. Paying for HIV test at antenatal clinic: How much would pregnant women in the Kassena-Nankana district of rural northern Ghana consider affordable. *Anti-viral Therapy* 2003; 8(suppl 1): S520.
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