

REVIEW OF HIV COUNSELLING AND TESTING STUDIES IN SOUTH AFRICA

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HSRC RESEARCH OUTPUTS

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Method

For South Africa the SEARCH STRATEGY included search online for published and unpublished studies in MEDLINE, EMBASE, CENTRAL, PUBMED. We also searched databases listing conference proceedings and abstracts; AIDSearch, The Cochrane Library, LILACS, CINAHL and Sociofile. We also contacted authors who have published on the subject of review, and for developing countries the review focused on reviews and key articles on the different counselling and testing models using above major databases.

Results

Results are divided into two sections: (1) reviews with focus on developing countries, and (2) review with focus on South Africa.

(1) Reviews with focus on developing countries

1. Traditional voluntary HIV counselling and testing (also called client-initiated VCT)

Description

Client-initiated VCT is conducted in a wide variety of settings, including health facilities, stand-alone facilities outside health institutions, through mobile services, in community-based settings, and even in people's homes (WHO/UNAIDS 2007).

The emphasis placed on HIV testing as an entry for treatment and care has tended to overshadow the need to examine VCT as a behavioural risk reduction programme. However, in 2006, the UN General Assembly reaffirmed their commitment to VCT specifically as an HIV prevention strategy (UN 2006). CDC (2001)/UNAIDS (2000) guidelines recommend that during pre-test counselling the counsellor and the client discuss the test process, assess the client's risk behaviours, discuss coping strategies related to receipt of test result, review prevention options, and reaffirm the decision to test for HIV. In the post-test counselling session clients receive their HIV status, discuss risk reduction strategies and disclosure of test results, and receive appropriate referral for care and support. These VCT intervention components are to influence several intermediate outcomes including the client's HIV risk reduction knowledge, attitude, beliefs and behaviours. Denison et al. (2007) conducted a

meta-analysis that focuses solely on VCT efficacy data from different VCT settings (health facility, stand alone, community-based, home) in developing countries. Overall, the pooled data from seven studies identified showed a moderate effect of VCT on unprotected sex and inconclusive evidence, based only on three studies, regarding the effect of VCT on recipients' number of sex partners. Effect size estimates showed the largest effects seen among HIV positive individuals or discordant couples. Similar to past meta-analyses and syntheses (Higgins et al., 1991; Weinhardt et al., 1999; Wolitski et al., 1997), the significant effect on unprotected sex is found primarily in studies conducted among HIV-infected persons or discordant couples. The majority of the studies took place before the availability of rapid tests and increased access to ART, factors that may influence outcomes related to the service. Recruitment strategies included researcher-, provider- and client-initiated methods. Weinhardt et al. (1999) meta-analysis in which more behaviour change occurred among participants who actively sought HIV counseling and testing compared to those who were approached by researchers. Provider initiated counselling and testing is a new and rapidly expanding approach and its impact on sexual risk behaviours has not yet been evaluated (Denison et al., 2007).

Several authors have emphasised the importance of the quality of counselling (to client-centered counselling standards) (Holtgrave & McGuire, 2007), in particular for HIV positive individuals good-quality counselling and particularly intensive counselling for couples together when one is positive, seems likely to result in behaviour change (Shelton, 2008). On the other hand, Chersich and Temmerman (2008) argue for increased emphasis on group pre-test information given during health talks, especially in antenatal and child health clinics. Brief individual pre-test sessions would then only be for confirming information was comprehended. Little evidence supports effectiveness of behaviour change counselling for HIV-negatives. Consequently, more abbreviated and focused post-test information (or printed leaflets) could be given for those testing negative. Conversely, substantial evidence shows post-test counselling for HIV-positives is effective, and should be prioritised and meet pre-set standards of quality. Though attention is needed to ensure high-quality interventions before and after testing, simplifying pre-test information and post-test information for negatives could facilitate a rapid increase in testing coverage and frequency.

Affordability and cost effectiveness of HIV counselling and testing

It is likely that the costs of VCT will fall as testing methods get cheaper and innovative approaches to counselling may reduce costs (UNAIDS, 2001).

The provision of free VCT enhances both the number of clients testing per day and its cost-effectiveness in resource-limited settings (Thielman et al., 2006). Creese et al. (2002) reviewed cost-effectiveness of HIV/AIDS interventions including VCT in Africa, and found that diagnosis and treatment of sexually transmitted infections cost just over 270 US\$ per infection prevented, and the figure for VCT was around US \$ 400-500.

Results from the multi-centre trial have shown that VCT can be a highly cost-effective intervention (Sweat et al., 1999, 2000). Using a hypothetical cohort of 10 000 seeking VCT, they estimated that the intervention averted 1104 HIV infections in Kenya and 985 in the United Republic of Tanzania. The cost per client for VCT was estimated to be US \$ 29 in the United Republic of Tanzania, and US\$ 27 in Kenya. In both these sites total costs were composed of 74% for labour and infrastructure, 2% for start-up, and 24% for commodity expenses. The single largest cost was for counsellor salaries and benefits (36%). The cost per HIV infection averted averaged US\$ 346 in the United Republic of Tanzania and US\$ 249 in Kenya. The cost per disability-adjusted life-year (DALY) saved was US\$ 17.78 and US\$ 12.7.

VCT was found to be more cost-effective when targeted at seropositive people, couples and women. The most cost-effective intervention was VCT aimed at couples. If they increased the proportion of couples attending VCT to 70% this would reduce the cost per DALY to US\$ 13.39 in the United Republic of Tanzania and US\$ 10.71 in Kenya. VCT compares favourably to other interventions in cost per HIV infection averted in East Africa (e.g. US\$ 251 per case of HIV averted for enhanced STI services in Mwanza. This intervention was estimated to cost US\$ 10 per DALY saved (Gilson et al., 1997). It is likely that the costs of VCT will fall as testing methods get cheaper (Meda et al., 1999) and innovative approaches to counselling may reduce costs. Furthermore, if VCT is targeted at couples and at people of higher risk this will also increase cost-effectiveness.

The cost-effectiveness of blood-donor counselling has also been determined. There is no policy on donor notification and HIV counselling for blood donors in India. If existing staff and infrastructure were used, the additional cost of providing these services to all blood donors would cost US\$ 1.2 per donor (Dhingra-Kumar, 1998). The author states that this intervention would enhance blood safety by "minimizing blood wastage, reducing HIV seroprevalence in donated blood, developing a health donor pool, in addition to facilitating life-style changes and behaviour modification in the donors" (UNAIDS, 2001).

1.1 Free-standing services:

Description

These programs offer VCT away from health services, but with frequent referrals of patients to care and support services. Stand-alone sites, also known as freestanding sites, are generally operated by nongovernmental organizations (NGOs) and are not associated with medical institutions. Usually CT is the only service these sites offer, and the staff is dedicated full-time to providing counseling and testing. Because clients most often self refer to stand-alone sites, they are commonly called voluntary counseling and testing (VCT) sites. For reasons of cost and cost-benefit, stand-alone sites are often located in high population density areas and where HIV infection rates are high (FHI, 2005).

Advantages

- They have the advantage of having dedicated staff, flexible hours of operation, and strong community links.
- Quality control is easier because staff is completely focused on providing CT.
- The model offers a unique opportunity to focus extensively on prevention and risk reduction counseling.
- Sites attract population groups that might not otherwise attend health-facility based CT. (Studies show that young people, couples and men in some settings prefer to use stand-alone services.)
- Flexible hours of operation and adequate staffing levels improve accessibility.
- Sites can meet increasing demand for CT services. (Experience from Malawi, Thailand, Uganda and Zimbabwe has shown this.) (FHI, 2005)

Challenges

- The model has high start-up and operating costs, usually requiring longstanding external support.
- Medical and psycho-social follow-up can be difficult to ensure because sites are usually not associated with medical infrastructure or other support services.
- Staff burnout may limit available services.
- Stigma may surround services because they are associated only with HIV. (FHI, 2005)

1.2 Integrated VCT:

Description

Integrated VCT is usually integrated into existing healthcare settings, such as sexually transmitted infection clinics (STIs), tuberculosis clinics, family planning and mother and child health (MCH) services.

Advantages

- They offer the advantage of ease of cross-referrals and are less costly to operate.
- CT is promoted as part of general health services, allowing the "normalization" of HIV.
- Health care workers are involved directly in HIV prevention activities.
- This model allows direct referral to other relevant care, such as antiretroviral therapy, management and prevention of opportunistic infections, TB, PMTCT, family planning and welfare support.
- CT is brought to the high volume of potential clients who visit public facilities.
- Potential for replication and scale up are high due to lower start up costs and more opportunities for outlets.
- Staff can provide services beyond the basic counseling typically available at stand-alone sites (FHI, 2005)

Disadvantages

- They may not appeal to groups who often do not go readily to health facilities, such as young people and men. Also, in the presence of competing interests, staff may not be committed to the VCT programme.
- This model has potential to dilute other health care services and lower quality CT services.
- It is difficult to enforce quality assurance measures and maintain the quality of CT service delivery, especially where client load is high.
- Integrated CT can cause a shortage of personnel and competing demands for service providers' time.
- Policy may not allow the use of non-health care workers — such as people living with HIV/AIDS, teachers, social workers and volunteers — as counselors in these settings.

- It may contribute to low motivation, especially among the public sector employees.
- There may be limits in administrative and managerial capacity to run these complex services.
- It can create long waiting times and inconvenient hours of operation. (FHI, 2005)

1.3 Private sector

Description

In many countries, private medical practitioners offer CT in their offices. This model, a variant of integrated CT, reaches people in higher income brackets who are less likely to use public-sector services.

Benefits

- Practitioners are committed to high quality care because the client is paying higher fees for services.
- Clients perceive private providers as a source of private, confidential services.
- Services are responsive to client needs.

Challenges

- Private-sector services are inaccessible to the poor and uninsured.
- Services do not always adhere to national/international quality standards.
- Providers often have no or inadequate training in HIV counseling.
- Time-consuming counseling does not always fit in a direct-fee model. (FHI, 2005)

1.4 Couple counselling

Couple counselling overcomes the problems of disclosure to partners and has been a successful intervention where it has been promoted, although in some countries there are barriers to attending (UNAIDS, 2001). High rates of sero-discordancy among married couples have been noted in many studies. The majority of studies of couple counselling among serodiscordant couples report successful outcomes in terms of changing behaviour to prevent HIV transmission to negative partners.

Use of this model in Rwanda showed that, compared to other VCT services, a far higher proportion of couples wanted to receive HIV counselling and testing together (Allen, 1993 see section 1). Furthermore, data from Rwanda have shown that use of VCT services by cohabiting couples is effective in reducing HIV transmission within HIV discordant couples and diminishing the acquisition of new HIV infections in seronegative couples (Allen et al., 1992; Allen et al., 1993). In a study from Kinshasa, couple counselling was shown to be effective in changing sexual behaviour in serodiscordant couples (Kamenga et al., 1991). Before VCT, less than 5% of couples had ever used a condom. One month after VCT, 70.7% of couples reported using condoms during all episodes of sexual intercourse. At 18 months of follow-up, 77.4% of the 140 couples still being followed reported continued use of condoms during all episodes of sexual intercourse. Intensive counselling followed testing and this led to a low rate of HIV seroconversion – 3.1% per 100 personyears of observation in Congolese married couples with discordant HIV status who attended VCT. At AIDS Information Centre (AIC) in Uganda, of 1 853 couples that attended together 77% said that they had never had sex but were intending to marry or start a sexual relationship; 92% were both seronegative; 0.8% were both seropositive and 7% were serodiscordant (Baryarama et al., 1998).

Among the AIC clients the probability of a seropositive man having sex with a new partner who was seronegative was 0.81, and among seropositive women 0.84. Thus, there is a high probability that people who are seropositive will develop sexual relationships with seronegative partners and, unknowingly, transmit HIV if VCT is not available.

However, in other settings, often there has been considerable resistance to this approach (Baggaley et al., 1997). Reasons for poor communication between partners are in part due to traditional beliefs about discussing sensitive subjects and roles of men and women within marriage. Teaching about HIV and gender awareness to young people may help future generations, but for women, in particular, who are currently in sexual relations, counselling and testing may fail to protect them from HIV infection from their spouses. In Uganda, although couple counselling was not popular when the services was set up – in 1992 less than 9% of attendees were couples – this services has become more popular, with 26% of couple attendees in 1996 (UNAIDS, 1999).

Advantages:

- Married couples should be encouraged to go for HIV counselling together so that serodiscordant couples can be identified and counselled to help prevent transmission to the uninfected partner.

- Offering VCT to couples overcomes the problem of sharing test results.
- Couple counselling and testing is aimed at enabling the couple to negotiate appropriate changes in sexual behaviour together.
- It also helps them plan together for their future and that of their dependants, with the support from their counsellor at both pre- and post-test.
- Couples seen together can be counselled to avoid blame and prepared, prior to testing, to make risk assessment and reduction plans together.

Voluntary couple counselling and testing (VCT), although more expensive, averted a greater number of infant infections when compared with individual VCT. Cost per disability-adjusted life year was similar to that of individual VCT. Sensitivity analyses found that couple VCT was more cost-effective in scenarios with increased uptake of couple counselling and higher HIV-1 prevalence. (John et al., 2008).

1.5 Premarital VCT

Premarital testing is being promoted in some countries, especially by religious organizations. There are no data on the long-term outcomes of this strategy. In many high-prevalence countries parents of young people and religious organizations are promoting pre-marital testing. In Nigeria, Catholic community organizations are promoting pre-marital VCT (Ubane et al., 2000). At AIC in Uganda, increasing numbers of people coming for VCT indicated that marriage plans was the reason they wish to be tested. In 1992, 6% of those attending VCT did so because of pre-marital testing and this figure rose to 35% in 1998 (Turyagyen Da, 2000).

1.6 Mobile voluntary HIV counselling and testing

Description

Mobile VCT denotes the provision of HIV counselling and testing services by mobile teams from a van equipped with HIV-testing facilities. This may be a van or other mobile means that is used to reach "hard-to-reach" populations. Mobile CT takes the services into the community by offering CT either out of a van or from designated places in the community. In some cases, bicycles and motorcycles are used. Under this model, a team of providers sets up a temporary site where they offer services to the general population, to defined groups such as a church congregation; attendees at cultural and sports events, employees of a company, or to hard-to-reach groups such as injection drug users, sex workers, truck

drivers, street boys or those with no fixed address. Mobile voluntary HIV counselling and testing Mobile VCT denotes the provision of HIV counselling and testing services by mobile teams from a van equipped with HIV-testing facilities (Asingwire 2004; Morin et al. 2006). The principle of mobile VCT is to take VCT to populations that are considered to be 'hard-to-reach', such as internally displaced populations, sex workers and truckers and employees at their workplace. Most mobile VCT services are provided in collaboration with local partners. South Africa and Swaziland work with churches and faith-based organizations, while Cote d'Ivoire and Rwanda provide VCT in military barracks and health facilities. Khumalo-Sakutukwa et al. (2008) found in a Community-Based Intervention to Reduce HIV Incidence in Populations at Risk for HIV in Sub-Saharan Africa and Thailand in the first year of the study, a 4-fold increase in testing was observed in the intervention versus comparison communities. We also found an overall 95% adherence to intervention components.

Advantages

- They improve access, may be anonymous, and can link to other services.
- Mobile CT improves access for hard-to-reach and rural populations.
- It brings the services to the beneficiaries.

Disadvantages

- Mobile CT can be expensive and not cost-effective; it requires a lot of resources (equipment and manpower).
- It can be difficult to ensure follow-up after post-test counseling.
- Extensive community mobilization is required to ensure uptake on the service date.
- It is challenging to ensure quality (especially of testing) at temporary sites.
- It can be difficult to prioritize HIV testing where clients have other pressing health needs. (FHI, 2005)

1.7 Home-based VCT (HBVCT):

Description

Under the home-based VCT approach, HIV counsellors offer HIV counselling and testing services in clients' homes. These are door-to-door services that offer VCT in people's homes. They often involve use of lay counselors or community health workers to provide

counseling and testing. Home-based counselors and testers move from door to door, provide pre-test counseling (usually to the entire family), and take consent from eligible family members. Each family member is then tested and post-test counseled. (Matovu et al. 2002; Were et al. 2006; Yoder et al. 2006).

Advantages

Home-based CT addresses the needs of the entire family at once and discussion on prevention and behavior change may be more effective in the context of the family and the home. Other advantages include reduced perceived stigma, cost-effectiveness (especially if lay community counselors are utilized), and the possibility that couples counseling and disclosure may be made easier, especially among discordant couples. Home-based VCT eliminates the cost of transport to the test site (Wolff et al. 2005) and increases uptake especially among women, as they do not need to seek permission for VCT or money for transport to VCT sites from male partners (Matovu et al. 2005; Msuya et al. 2006; Thior et al. 2006). This approach can also reduce stigma associated with being seen at the VCT clinic (Yoder et al. 2006). Access to and uptake of VCT can increase with homebased VCT (Wolff et al. 2005; Were et al. 2006). In a Zambian study (Fylkesnes & Siziya 2004) of VCT acceptability of participants randomized to receive VCT either at the local clinic or at an optional location (i.e. home, local clinic or other venue of choice), 55.8% of participants allocated to an optional location took VCT, whereas only 11.8% of those allocated to the local clinic did. Eighty-four per cent of those allocated to an optional location opted to receive VCT at home. Earlier, uptake rates had never exceeded 13% overall (Nyblade et al. 2001). Similar results were achieved in the rural Masaka and Bushenyi districts of Uganda where, before home-based VCT, uptake rates were below 10% (Wolff et al. 2005; Nuwaha et al. 2006). In a study that assessed the uptake of home-based VCT provided alongside a population-based survey in selected regions of Uganda (Yoder et al. 2006), 86% of participants received HIV test results and post-test counselling (83% of men and 88% of women); 93% chose to receive both at home. Home-based VCT reduced the cost in time and money to travel to a facility, and as one participant reported, 'no one can tell what

Home-based CT addresses the needs of the entire family at once.

--Discussion on prevention and behavior change may be more effective in the context of the family and the home.

Disadvantages

HBVCT can be time-consuming; as the provider must move from home-to-home, and family disclosure, especially of parents to children, may be difficult, as the parent(s) have to deal with knowledge of their status first. Testing everyone at the same time may mean premature disclosure, which can lead to adverse social outcomes.

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Disadvantages of client- initiated counselling and testing

Its coverage has remained largely inadequate. In many settings where health systems are weak and resources limited, its availability is constrained by shortages of skilled service providers, inadequate material resources, poor infrastructure and inadequate procurement and supply management systems (WHO/UNAIDS/UNICEF 2007). Individual attitudes and personal perceptions of risk also have a considerable effect on the uptake of VCT [Kalichman & Simbayi 2003; Ministry of Health (MoH) & ORC Macro 2006]: stigma and fear of negative reactions to disclosure create further barriers to testing (Kalichman & Simbayi 2003); gender inequalities contribute to delays in women learning their HIV status and increase the risk of discrimination and violence following disclosure of HIV-positive status (Pool Transport difficulties and the fear of being seen at healthcare facilities limit the number of people seeking VCT from established healthcare settings or at stand-alone VCT sites (Asingwire 2004; MoH & ORC Macro 2006;

Morin et al. 2006; Yoder et al. 2006). As a result, many people, including those living with HIV, have not sought VCT and are not aware of their HIV status.

2. Routine (or opt-out) offer of HIV counselling and testing (also known as provider-initiated VCT) refers to HIV testing and counselling which is recommended by health care providers to persons attending health care facilities as a standard component of medical care.

Description

In this model, the HIV test is offered as part of routine medical care, usually with other tests that are requested during the patient's clinical visit. Counseling is offered in terms of groups

and more emphasis is put on post-test counseling. Patients who refuse the test are considered to have opted out. This model has been implemented in many countries in prevention of mother-to-child transmission (PMTCT), tuberculosis, STI clinics, and medical wards (Alcorn 2006), and has been recently recommended by the US Centers for Disease Control and Prevention (CDC) as one of the ways of increasing early diagnosis (CDC 2006). According to the recent WHO/UNAIDS guidelines (WHO/UNAIDS 2007), an HIV test is recommended for all patients, irrespective of the epidemic setting, whose clinical presentation might result from underlying HIV infection, as a standard part of medical care for all patients attending health facilities in generalized HIV epidemics and more selectively in concentrated and low-level epidemics. The purpose of such testing and counselling is to enable specific clinical decisions to be made and / or specific medical services to be provided that would not be possible without the knowledge of the person's HIV status (WHO/UNAIDS 2007).

Advantages

Advantages include reduced start-up costs for the service, but the service has been criticized for taking away the "voluntariness" from HIV testing. Following the recommendations of the WHO (WHO 2007) regarding RTC in generalized epidemics where treatment is available, Uganda continued implementing RTC from a few, initially research sites (CDC 2006) in healthcare facilities. From a public health perspective, the primary aim of RTC is to increase the number of people who know their status and for those who test HIV-positive, to get them into clinical care sooner (MOH-Uganda 2005). In the context of increased access to treatment and care in Uganda for individuals who test positive, the primary goal of RTC is to get individuals who test positive into clinical care sooner (Liechty 2004; MOH-Uganda 2005) and preventing HIV transmission and acquisition is a secondary goal of RTC in Uganda (MOH-Uganda 2005).

Routine offer of HIV counselling and testing reduces stigma and discrimination (Weiser et al. 2006), identifies previously undiagnosed HIV infection (Homsy et al. 2006), gives women the opportunity to use VCT without having to seek permission from male partners (Weiser et al. 2006), refers clients early to HIV prevention, treatment and care services (Creek et al. 2007), and as many pregnant women attend antenatal care (Jimoh 2003), it can increase the uptake among women (Homsy et al. 2006; Weiser et al. 2006). RCT has helped to improve access to and uptake of VCT in Botswana (Weiser et al. 2006; Creek et al. 2007), Zimbabwe (Perez et al. 2005), Malawi (Manzi et al. 2005) and Uganda (Homsy et al. 2006), among others.

Disadvantages

While it is claimed that treatment roll-out will reduce stigma and discrimination, there is little evidence to support the claim. It is also claimed that treatment uptake will reduce the likelihood of HIV transmission and that thus treatments themselves have a preventive effect. This direct effect of treatment uptake on prevention is augmented, it is claimed, if use is made of the voluntary counselling and testing (VCT) encounter and people counselled to act safely. Again there is little evidence to support the claims made. In addressing the evidence for these two claims, the paper cautions against the large scale adoption of routine 'opt out' or, as it is sometimes called, 'provider-initiated' testing (Kippax, 2006).

VCT coverage and implementation of different models in resource-limited settings

Regrettably, although VCT is an effective prevention intervention in resource-constrained countries (VCT Efficacy 2000), coverage in many developing countries remains low for various reasons (Prabhat 2002; Coovadia 2000).

It is estimated that, worldwide, only 10% of HIV-positive individuals know their status. This is, in part, attributed to the fact that a majority of people in developing countries do not have access to HIV-CT (Global Report 2007). In Uganda, for example, only 15% of the population has been tested, while more than 70% desired to be tested (Kamya 2007). The reasons for not testing include the following: HIV-related stigma; the distance (and associated transport costs) people have to travel to reach testing sites; and having to return to receive results for post test counseling, especially where rapid testing is not performed (Morin 2006).

For example, a national study in Uganda showed that 70% of adults reported wanting to receive testing, but only 6% had actually been tested (UBOS 2001). Similarly, about 50% of people hospitalised in Uganda have HIV infection, but HIV testing is rarely available in hospitals and almost never routinely offered to patients (Wanyenze 2004). Notably, before rapid testing became more widely available, those who tested in hospitals and other facilities were less likely to return for their results (Wolff 2005; Fylkesnes 1999). In Zimbabwe, inconvenience of location and hours of testing were the main reasons for not being tested previously in a group of people accessing VCT at a mobile testing site (Morin 2006).

Making rapid HIV testing more widely available and accessible could have a significant impact on the prevention of HIV infection in developing countries. Analysis of an intervention to deliver HIV test results to people's homes in a rural cohort in Southwestern Uganda showed an increase in the uptake of results from 10% to 37% (Wolff 2005). Likewise,

following the implementation of home-based VCT by the AIDS Information Centre (AIC), Uganda's pioneer testing site, 5000 people received VCT in 2000 homes over a one-year period. In over 65% of the homes, at least one family member agreed to participate in testing (Murana 2005).

A study cohort in Rakai district in South Western Uganda also showed a rise in uptake of VCT, from 35% in the first year (1994 to 1995) to 65% subsequently (1999 to 2000) (Matovu 2002), while one-time delivery of HIV results after community-wide mobilization in Mukono (a rural Ugandan district), yielded an uptake of 93% (Were 2003).

In a bid to scale up VCT, Lesotho, a country with one of the highest HIV prevalence in the world, has embarked on a nationwide home-based HIV voluntary testing program (WHO 2005). By the end of 2007, it is envisaged that all households will be offered HIV tests through door-to-door VCT services. The impact of this program in getting people into care and changes in sexual behavior is expected to be significant (WHO 2005).

FHI (2005) CT models include stand-alone, integrated, quasi-integrated, private sector, mobile and home-based. There is no best approach or model for CT. Each has strengths and weaknesses and should be implemented appropriately to suit the targeted populations and regions. In most cases, a combination of models is appropriate to maximize coverage and improve the accessibility and acceptability of CT services.

When selecting CT models, one should consider program goals. Is the primary purpose to enhance access to care, support and treatment; to provide services to a general population that needs to know their HIV status for both prevention and care; or both? One should also consider cost, cost-effectiveness, sustainability, affordability, appropriateness to the target group, epidemiological profile, socio-political situation and convenience to the clients.

Matovu and Makumbi (2007) note that in most parts of sub-Saharan Africa, fewer than one in 10 people know their HIV status. Stigma, fear of receiving an HIV-positive status, lack of confidentiality, long distances to VCT sites, and long delays in returning HIV test results limit people's access to traditional VCT systems. Alternative VCT delivery models, such as mobile VCT, routine offer of VCT and home-based VCT increase access to and uptake of VCT. We recommend that these alternative models be implemented in more settings and on a much larger scale in sub-Saharan Africa, where VCT uptake rates remain low.

(2) Review with focus on South Africa

Introduction

VCT has become increasingly important in the global response to HIV/AIDS. It benefits clients, their sexual partners and families, the general community, and the entire society by helping prevent the spread of HIV and linking infected persons to care, treatment and support. However, psychological and physical barriers, such as access to HIV testing and stigma surrounding HIV testing, remain and prevent rapid HIV testing scale up in the developing world (PSI, 2008).

VCT has been available in South Africa since the early 1990s – notably through city-based AIDS Training, Information and Counselling Centres (ATICCs), various NGOs, private sector services, and in some clinics and hospitals. In 2000, the process of expanding VCT within public sector health care was initiated as part of the national strategic plan on HIV/AIDS and STIs. Magongo et al. (2002) has found that access to VCT within the public sector was overly reliant on primary health clinics, which may discourage some people from testing; and that VCT services tended to be provided during standard working hours only, which may deter employed people and students from testing.

The South African National Voluntary Counselling and Testing (VCT) HIV Prevention and Care Strategy sets as its goal universal access to VCT services for 15-49 year olds (DOH 2003). The strategy seeks to move beyond existing 'integrated' medical sites that offer VCT, such as primary health clinics, STI clinics, and family planning clinics, to establish a greater number of non-medical integrated or stand-alone sites that cater for particular target groups, such as youth, rural inhabitants, and working men. These sites cater primarily for clients who access VCT in the context of PMTCT or home-based care (DOH 2003).

By March 2004, VCT was available at more than 1900 service points in South Africa (National HIV/AIDS and TB Programme, 2004). VCT has also expanded in other sectors including private sector clinics and hospitals, workplaces, and community-based/non-profit organisations. The number of VCT sites in South Africa has increased significantly in recent years, with 4,172 operational by November 2006 (AVERT, 2008).

In 2005, based on a national population-based survey 15 years and above (Shisana et al., 2005) 29.2% report to have ever been to an HIV test (30.9% women and 26.4% men), 38.8% got tested within the last year preceding the survey, 33.1% between 1 to 2 years and 28.2% more than 2 years ago.

1) Traditional voluntary HIV counselling and testing (also called client-initiated VCT)

Description

Client-initiated VCT in S.A. has been conducted in the context of PMTCT, public clinics and at workplaces.

1.1. Client-initiated VCT in PMTCT settings

Advantages:

Increased uptake and acceptability of VCT among pregnant women has been shown in some South African communities. Uptake of services has often been regarded as an important measure of VCT services "success" (UNAIDS, 2001). A good VCT uptake and acceptability in PMTCT settings has been shown in Soweto and Durban by Cartoux et al (1998). VCT acceptance rates in Soweto were shown to be 97% while 98% in Durban. In a study conducted by Wilkinson & Wilkinson (2001) in rural South Africa, only 7 women (10%) reported knowing their HIV status while 93% said they would have an HIV test if it could help their baby. All women said that they would welcome HIV education and an offer of voluntary HIV testing and counselling in the prenatal clinic as part of routine prenatal care. In Peltzer et al. (2007) most pregnant women (92.4%) indicated that they never had an HIV test. However, after having been provided with HIV/AIDS information, wanting to know their HIV status and concern for the transmission of HIV from mother to the unborn child were given as major factors that would encourage them to come for an HIV test. Urban et al. (2004) reviewed antenatal and hospital records and 52.3% of women tested for HIV and received their results while 16% of their infants received nevirapine.

Rose et al. (2005) found that postpartum VCT is acceptable, feasible and affordable option.

Barriers

Client-counsellor dynamics during pretest counselling were pivotal in determining uptake and participation, and counsellor profile strongly influenced the nature of the interaction (Varga & Brookes, 2008). According to the DHIS records, of those at first antenatal care (ANC) visit, 24% were not given counselling and 32.5% were not tested for HIV, 11 % of those given counselling at first ANC visit were not tested for HIV (Rispel et al, in print).

Attitudes of health care staff and counsellors are very important in the success of PMTCT interventions. Higher rates of uptake are seen where the midwives/counsellors are supportive and understand the benefits of PMTCT (WHO/UNAIDS, 2001).

Ndabishembye (2004) observed a general lack of counselling skills by counsellors whereby the content of counselling did not cover all the necessary grounds and important issues adequately. The duration of counselling was short and communication with the clients tended to be one-way. Stigma, discrimination and lack of adequate awareness, short opening hours in some clinics, the lack of privacy and confidentiality negatively affected utilisation of VCT services among others.

Chopra et al. (2005) assessed the quality of counselling in the context of PMTCT, and found that although communication skills were very good, only 73% of HIV uninfected mothers were informed of exclusive breast feeding, one of 34 HIV infected mothers was informed about possible side effects of nevirapine, and none told what to do when it occurred, only two HIV infected mothers were asked about essential conditions for safe formula feeding, 85% could not explain term "exclusive breast feeding" (EBF), none of the 12 mothers choosing to breastfeed was shown to position the baby correctly on the breast or asked whether they thought EBF was feasible.

1.2. Client-initiated VCT in public clinics

Access to VCT was found to be overly reliant on primary health clinics in South Africa, but it has expanded to private sectors as well in other sectors (Birdsal et al., 2004). However, VCT services in rural areas were found to be insufficient. Available VCT services in rural areas were predominantly hospital-based and this impacted on VCT clients in rural areas. A baseline assessment conducted in June 1999 showed that VCT was largely unavailable at primary health care (PHC) level, but were predominantly hospital-based (Pronyk et al., 2002). VCT was introduced among five PHC facilities in a rural South Africa setting (Agincourt sub-district), and one year after its introduction, a major increase in the quantity of HIV testing, the proportion of clients who receive their results, and the proportion who present voluntarily was observed. The majority of those presenting were women, and 20-40 year olds predominated.

Barriers

- serious disruptions in continuity of the counselling session,
- counsellors who are known to be unsupportive of VCT services,

1.3. Client-initiated VCT at workplaces

There is a need for workplace education programmes, confidentiality and convenience of the VCT services to be improved to promote access to VCT by South African mineworkers. Day et al (2007) has shown that VCT uptake among mineworkers (26%) in South Africa was likely to increase provided that there were improvements made to the confidentiality and convenience of the company's VCT service.

Mineworkers (14%) indicated that they would be more likely to access VCT if antiretroviral therapy became available. ESKOM workers wanted their company to take a more directive role in providing HIV treatment (Esu-Williams et. al, 2005).

Barriers to VCT uptake

Mineworkers expressed fear of a positive result and the potential consequences, particularly stigmatisation, disease and death, as major barriers to HIV testing. Concerns about confidentiality of HIV test results were also raised by clients (Grant et. al, 2002; Day et al, 2007). Eskom employees worried most about stigma from co-workers and managers, manifested through social isolation and ridicule, and requested assistance with disclosing HIV status when necessary (Esu-Williams et. al, 2005).

2. Routine offer of HIV counselling and testing (also known as provider-initiated Counselling and testing)

Description

Refers to HIV testing and counselling which is recommended by healthcare providers to persons attending healthcare facilities as a standard component of medical care.

'Opt in' and "Opt out" approaches

HIV testing is fundamental to both prevention and treatment of HIV. Efforts to increase the coverage of HIV testing have recently extended to the provision of "opt-out" or routine HIV testing, where the healthcare provider rather than the client or patient initiates the test. HIV testing is offered routinely to all patients attending a particular healthcare service, such as an antenatal clinic, even though they are asymptomatic for HIV disease. The emphasis is changed from client initiated (as in VCT) to provider initiated testing. The test is still

voluntary, with the option to refuse testing (opt out). Such an approach has been shown to increase uptake of testing in settings such as the USA. It may also decrease the stigma associated with choosing to have a test – in as much as everyone is having it offered irrespective of perceived risk (Collini, 2006).

Provider-initiated VCT in clinics

Routine HIV testing at the point of care in an outpatient department, in South Africa, increased case identification by more than 4 times as compared to HIV testing by physician referral (39 vs. 8 new). Out of 435 patients referred by physician for HIV testing, 137 completed testing at the VCT site, whilst out of 2912 patients, subjected to routine HIV counseling, 1414 patients accepted HIV testing (Bassett et al. 2007).

Routine (Provider-initiated) VCT in the context of PMTCT

The routine 'opt-out' approach has been shown to greatly increase uptake of HIV testing in some PMTCT settings in South Africa. A 95% HIV testing rate was noted among 190 women attending prenatal and 74 postnatal care in Khayelitsha, Cape Town (Etiebet et al, (2004) and 94% of those tested also received pre-test counselling. Women received HIV counselling in a group and were asked if they would like to receive an HIV test. Those who opted for HIV testing also received individual HIV counselling. Test results were reported individually in post-test counselling sessions at subsequent visits. Only 8% of those tested did not remember having received post-test counselling. Generally, most women (94%) were satisfied with the counselling services offered.

In Kwa-Zulu Natal the 'opt-out' HIV testing approach doubled the national VCT acceptance average (Doherty et al, 2004).

Uptake of counselling and testing designed as an 'opt in' model differed greatly across all the other provinces, ranging from 14 to 92 %. Overall, 85% of women who tested received their results (Doherty et al, 2004). Among fifty South African antenatal patients who refused routine HIV testing at the antenatal clinic of the Johannesburg Hospital, twenty-two (44%) of the blood specimens tested positive for HIV (Mseleku et al, 2005).

Provider-initiated VCT at workplaces

South Africa faces a rapidly growing HIV epidemic and mineworkers are an especially vulnerable group. A survey carried out in 1998–99 among mineworkers in Welkom revealed

an HIV prevalence of 24% in the general population and 53% among those presenting with sexually transmitted infections (STIs) (Charalambous S., personal communication). Within the health service providing care for miners in the Welkom area, HIV testing first became available to doctors for diagnostic purposes in 1991. In 1992, nurses were made responsible for pre- and post-test counselling and VCT has been available on request at primary health centres since then. However, since HIV infection was rare at that time, testing was offered only occasionally, primarily to those who were sick, and spontaneous requests for testing were effectively unknown. In the early days of the epidemic both nursing staff and clients took the issue of testing lightly; employees were willing to be tested, perhaps with limited understanding of the implications of the test, and nurses were sceptical about the relevance of HIV to their practice (Ginwala et. al, 2002).

More recently, nurses report that willingness to be tested has declined, perhaps largely because of fears that a positive HIV result might lead to job loss. Until the mid-1980s, employees with chronic medical conditions such as diabetes and hypertension were dismissed: in other mining companies, tuberculosis has in the past been a reason for dismissal. There is no evidence of selective redundancy for HIV-infected employees in this company, except that individuals who are unable to work because of advanced disease are offered retirement on medical grounds. Since the late 1990s, there has been major downsizing of the workforce (in Free State, from 60,000 to 15,000 within the last five years) which has increased job insecurity, and unsubstantiated rumours about selective redundancy of HIV-infected employees circulate.

Currently, counselling about HIV infection is routinely offered to all those presenting to the mining primary health centres with STIs. At the hospital, VCT is offered to all patients admitted with newly diagnosed TB or other HIV-associated diagnoses. Counselling at these sites is carried out by nurses (Ginwala et. al, 2002).

Affordability and cost effectiveness of HIV counselling and testing in SA

It is likely that the costs of VCT will fall as testing methods get cheaper and innovative approaches to counselling may reduce costs (UNAIDS, 2001). VCT costs are likely to fall as the uptake of VCT increases. McConnel et al (2005) determined the cost per client completing VCT (pre-test counselling, testing and post-test counselling) in a non-research-based programme in South Africa using rapid-test technology. Financial expenditure for the 2002/2003 fiscal year was \$39761. Using market prices for donated resources, the economic cost for the year was estimated at \$67 248. Six hundred and sixty-two clients completed VCT, resulting in financial expenditure of \$60.06 per client and an economic cost

of \$101.58 per client. Financial expenditures, and economic costs per client decreased over the year by 66% because expenses remained stable as more clients were served.

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Table: South African, local studies

1) Traditional voluntary HIV counselling and testing Traditional VCT (also called client-initiated VCT) involves individuals actively seeking HIV testing and counselling at a facility that offers these services

1.1 Client-initiated VCT in context of PMTCT

Author(s)	Sample	Goal of study	Main Outcome	Advantages/disadvantages/quality assurance
Cartoux et al. (1998)	Pregnant women; Soweto (VCT offered n=1250), Durban (VCT offered n=421)	Acceptability of pretest and post-test counselling	Soweto: VCT acceptance rate: 97%, return rate 83%, return rate of HIV positive 50% Durban: VCT acceptance rate: 98%, return rate 98%, return rate of HIV positive 100%	
Chopra et al. (2005)	22 counsellors (14 lay staff and 8 nurses) 60 exit interviews 60 sessions observed in 3 different sites	Assess quality of counselling in context of PMTCT	<ul style="list-style-type: none"> -Communication skills: very good -73% of HIV uninfected mothers were informed of exclusive breast feeding -One of 34 HIV infected mothers was informed about possible side effects of nevirapine, and none told what to do when it occurred -Only two HIV infected mothers were asked about essential conditions for safe formula feeding -85% could not explain term "exclusive breast feeding" (EBF) -None of the 12 mothers choosing to breastfeed was shown to position the baby correctly on the breast or asked whether they thought EBF was feasible 	
Doherty et al. (2005)	Routine PMTCT programme data were collected from all 18 pilot sites in 2002	In all provinces, except KwaZulu-Natal, counselling and testing was designed as an 'opt in' model	<ul style="list-style-type: none"> -Uptake of HIV testing differed greatly across provinces ranging from 14 to 92% -KwaZulu-Natal (opt out approach) HIV test acceptance rate double the national average -Availability of lay counsellors was associated with HIV testing uptake -Overall 39733 (85%) of women who tested received their results -Lack of integration of VCT within antenatal care 	

Author(s)	Sample	Goal of study	Main Outcome	Advantages/disadvantages/quality assurance
Etriebet et al. (2004)	190 women attending prenatal 74 postnatal care, Khayelitsha, Cape Town	Women receive HIV counselling in a group, are asked if they would like to receive an HIV test. Those who opt for HIV testing also receive individual HIV counselling. Test results are reported individually in post-test counselling sessions at subsequent visits	<p>-95% HIV testing rate</p> <p>-94% of those tested also received pre-test counselling</p> <p>-45% believed that patients who accept HIV testing received better treatment at the clinic</p> <p>-8% of those tested did not remember having received post-test counselling</p> <p>-94% were satisfied with the counselling services offered</p>	
Mseleku et al. (2005)	Fifty antenatal patients agreed to participate	to determine the HIV seroprevalence of pregnant South African women who refused routine HIV testing at the antenatal clinic of the Johannesburg Hospital,	Twenty-two of the 50 blood specimens, or 44% of patients analysed, tested positive for HIV. This is an alarming statistic, as the HIV prevalence in the general antenatal population at the Johannesburg Hospital is 29.4%.	
Mash et al. (2008)	38 lay and nurse counsellors, four sites in Southern Africa	How motivational interviewing can be integrated into PMTCT counselling	-four out of seven global counselling rating	
Mkwanazi et al. (2008)		Acceptability of HIV counselling and testing, and uptake of results, before and after the introduction of rapid testing in this area	Of 12,323 women counselled, 5,879 attended clinic prior to May 2003, and 6,444 after May 2003 when rapid testing was introduced; of whom 4,324 (74.6%) and 4,810 (74.6%) agreed to have an HIV test respectively. Of the 4,810 women who had a rapid HIV test, only 166 (3.4%) requested to receive their results on the same day as testing, the remainder opted to return for results at a later appointment.	Women with secondary school education were less likely to agree to testing than those with no education (AOR 0.648, p,0.001), as were women aged 21–35 (AOR 0.762, p,0.001) and .35 years (AOR 0.756, p,0.01) compared to those <20 years.

Author(s)	Sample	Goal of study	Main Outcome	Advantages/disadvantages/quality assurance
Ndlovu et al. (2003)	74 VCT provider-client interactions in which counselors take various actions; 67 VCT clients who provided exit interviews; KwaZulu-Natal	Quality of counselling	Among the 32 facilities where VCT clients were observed and interviewed, client load averages approximately 3 VCT clients a month. Far fewer mothers receive Nevirapine. Since VCT facilities are not overloaded, their client load probably could be increased without overburdening the system.	<p>Most of the counseling (78 percent) is conducted by lay counselors in an atmosphere of privacy. Both the nurse observers of the counseling and the clients in exit interviews report that counselors are very attentive to establishing rapport, maintaining confidentiality, listening to clients' concerns, responding to those concerns, and giving support. These findings suggest that counselors are sensitive to the emotional needs of their clients.</p> <p>In terms of topics discussed during pretest counseling sessions, counselors emphasized possible outcomes and implications of an HIV test, talked about living positively if the test were positive, and covered prevention strategies if the test were negative. With the clients whose test was negative, the counselors emphasized condom use (mentioned to 71 percent of 63 clients) but placed less emphasis on abstinence and monogamy (mentioned to approximately a third of the clients). In the posttest counseling, issues of disclosure and the use of condoms were discussed. With HIV-positive clients, the counselors discussed the need to live positively, obtain other medical services, and maintain good nutrition. Far less frequently did the counselors discuss referral to community groups, family planning services, or possible violence as a result of disclosure.</p>
Peltzer et al. (2005)	Post-test counselling assessment of 186 pregnant women (55 HIV-infected, 131 HIV uninfected) in public clinics		<p>99.5% Your right to consent for the HIV test</p> <p>81.7% Transmission of HIV through breast milk</p> <p>96.8% Feeding options</p> <p>71% Advantages and disadvantages of HIV disclosure</p> <p>98-86% Session was conducted in privacy</p> <p>89-81% Got chance to express her needs and concerns</p>	

Author(s)	Sample	Goal of study	Main Outcome	Advantages/disadvantages/quality assurance
Peltzer et al. (2007)	<p>From 1st October 2003 to 30 April 2004, 1534 pregnant women were recruited at first antenatal care visit from 5 clinics implementing PMTCT (61%) and from 5 communities around the 5 clinic areas (39%) in region E, Eastern Cape.</p> <p>In addition, the mothers or mothers-in-law (70.9%) and husbands or partners (58.2%) of the pregnant women were interviewed at their homes</p>		<p>Most pregnant women (92.4%) and their husbands or partners (84%) in this sample indicated that they never have had an HIV test (92.4%). Major barriers of pregnant women for not having had an HIV test were fear of being HIV positive, not aware where to get tested and lack of confidentiality of test results. Having been provided with HIV/AIDS information, wanting to know their HIV status and concern for the transmission of HIV from mother to the unborn child were given as major factors that would encourage them to go for an HIV test. Most mothers or mothers-in-law (834, 98.9%) and husbands or partners (767, 95.3%) would encourage their daughter or wife respectively to go for an HIV test.</p>	
Rispel et al. (in print)	<p>296 interviewed at postnatal care; DHIS routine data</p>		<p>Postnatal interviews: Of 296 antenatal care attendees interviewed, 74% reported that they been offered HIV counselling and testing. 67.5% of pregnant women got tested for HIV DHIS: -346/1415 (24%) of those with an ANC visit were not given counselling -460/1415 (32.5%) of those with an ANC visit were not tested for HIV. -114/1069 (11%) of those given counselling at an ANC visit were not tested for HIV.</p>	

Author(s)	Sample	Goal of study	Main Outcome	Advantages/disadvantages/quality assurance
Rose et al. (2005)	7500 women who delivered at Chris Hani Baragwanath Hospital without a documented HIV-1 result were identified in postnatal wards	Feasibility and acceptability of postpartum VCT	Postpartum VCT was offered to 5751 women with 3794 of these patients accepting testing (66% uptake). Of the women who accepted testing 34% tested HIV positive.	96% accepted the administration of single-dose NVP to their infants
Urban & Chemish (2004)	Review of antenatal cards & hospital records	Assessed the effect of regular audit and targeted interventions of the utilisation of the PMTCT programme	52.3% of women tested for HIV and received their results -16% of their infants received nevirapine	
Varga & Brookes (2008)	examine barriers to HIV testing uptake among adolescent mothers aged 15 to 19 years in rural and urban Limpopo Province.		Client-counselor dynamics during pretest counseling were pivotal in determining uptake and participation, and counselor profile strongly influenced the nature of the interaction	
Wilkinson & Wilkinson (2001)	Acceptability of prenatal, voluntary HIV counselling and testing in rural South Africa		-Only 7 women (10%) reported knowing their HIV status but 93% said they would have an HIV test if it could help their baby. -All women said that they would welcome HIV education and an offer of voluntary HIV testing and counselling in the prenatal clinic as part of routine prenatal care	

1.2 Client-initiated VCT at workplace

Author(s)	Sample	Goal of study	Main Outcome	Advantages/disadvantages/quality assurance
Grant et al. (2002)	22 nurse counsellors & 6 community volunteers interviewed Mine workers	Assess quality of VCT, client and counsellor satisfaction	-Fear of a positive result as a major barrier to HIV testing -Clients raised concerns about confidentiality	

Author(s) Mahajan et al. (2007)	Sample	Goal of study Review of HIV/AIDS workplace policies in Southern Africa	Main Outcome Growing provision of VCT in South Africa: Large firms (>500 employees): 74% VCT Medium firms (100-500 employees): 47% VCT Small firms (<100 employees): 15% VCT	Advantages/disadvantages/quality assurance Uncertain quality of VCT programmes offered by private sector vendors; Low uptake of workplace ART programmes because of low uptake of VCT and concerns about confidentiality
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1.3 Client-initiated VCT at public clinic

Author(s) Richter et al. (1999)	Sample videotaped sessions of simulated counselling sessions with role playing "clients"	Goal of study Analysis of films of counselling sessions with a simulated client:	Main Outcome Observed counsellors showed a range of skill and competence, ranging from very good to below average. No observed counsellors engaged in interpersonally damaging behaviour. Counsellors also appeared to achieve markedly different outcomes for clients as rated by observers, thus suggesting important individual differences arising from both personal and training dimensions: ◦ openness. ◦ These findings suggest that counsellor selection is an important aspect	Advantages/disadvantages/quality assurance South African counsellors used features of both modes of HIV/AIDS counselling: directive and health advising on the one hand, and client centred and open-ended on the other hand. However, they tended to use more of a directive style than a client-centred style, a finding which contradicts the avowed approach of the majority of counsellors interviewed. An important finding was that lay counsellors did not differ from nurse counsellors on any measure of competence or quality of counselling. Neither competence nor quality of counselling was found to be related to training, experience or site of service delivery. The only counsellor assessed factor that predicted counsellor competence and quality was a personal dimension related to interpersonal
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Author(s)	Sample	Goal of study	Main Outcome	Advantages/disadvantages/quality assurance
Magongo et al. (2002)	<p>From the total of 438 sites reported to be functional by December 2001, 178 sites were sampled representing 39 urban, 86 rural and 54 township sites across the country. Conveniently sampled site managers, counsellors and VCT clients were interviewed using structured questionnaires. A checklist was administered in each of the selected sites. Finally, key informants representing the district, provincial and national VCT programme were purposefully sampled and interviewed using an interview guide.</p>	<p>This assessment of the public sector VCT sites was aimed at informing the National Department about progress made thus far with the implementation of their VCT programme.</p>	<p>Registers of HIV test results were reportedly kept in a secure and confidential place, inaccessible to people who did not work with VCT clients. Amongst the staff of the VCT sites, counsellors had most access to client information and less than half (39%) of the managers had access to VCT client information. All sites collected routine data, although they did not use the information as part of their advocacy strategy for VCT. Although site managers collected routine data and used it for VCT management, record reviews indicated that the data in most sites was incomplete and poorly recorded, making it difficult to monitor indicators that might be useful for measuring the performance of the service. Most HIV test results were given to the client on the same day. Although clients reported to have known about pre and post counselling and testing, the number of clients who mentioned ongoing counselling was considerable lower. Counsellors and site managers reported the presence of proper disposal systems for test kits, blood and sharp objects at most of the sites. However, most sites were found to have poor quality assurance in place for testing systems and no quality assurance guidelines for counsellors.</p>	<p>The majority of counsellors reported that during the pre-test counselling, they had enquired about their clients' knowledge of HIV, had discussed with them their reasons for attending, and had given their clients information about testing. Most clients felt their counsellors had met with their expectations. In the post-test counselling sessions, more than 90% of counsellors mentioned that they had given their clients clear and simple results and had explained the meaning of these results. When considering both the estimated pre and post counselling times, counsellors felt that pre-test counselling required more time than post-test counselling. Clients seemed to be influenced by the quality of pre-test counselling when making decision to test for HIV, as (86%) reported their decision to test or not to test was influenced by the counselling they had received.</p>

Author(s)	Sample	Goal of study	Main Outcome	Advantages/disadvantages/quality assurance
Ndabishimye (2004)		To assess the quality of HIV counselling and identify factors influencing the utilization and clients satisfaction with HIV counselling services, at PMTCT and VCT pilot sites.	A general lack of adequate counselling skills by the counsellors was observed. The content of counselling did not cover all the necessary grounds and important issues adequately. The duration of counselling was short and communication with the clients tended to be one-way. Stigma, discrimination and lack of adequate awareness, short opening hours in some clinics, the lack of privacy and confidentiality negatively affected utilisation of VCT services among others.	
Cornman et al. (2008)	152 HIV infected patients	To evaluate the effectiveness of a risk reduction intervention provided to HIV-infected patients by counselors during routine clinical care	The intervention was delivered to 99% of routine patient visits and patients who received counselor-delivered intervention reported a significant decrease over time in number of unprotected sexual events.	
Mwamburi et al. (2005)	Indepth interviews with 12 VCT participants: 6 who wanted to know their HIV status and 6 who did not want to know	Determine the proportion of study subjects who wanted to know their HIV status and to describe factors associated with and reasons for wanting to know HIV status.	Of the 628 participants, 80% wanted to know their HIV results. Reasons cited for wanting to know HIV results suggested the desire to be able to take preventive measures, ruling out the infection, and optimism for future availability of treatment, while not wanting to know was often because of the fear of being HIV infected, stigmatization, and death as a result of the disease.	Study suggests that participant-oriented counseling produces high rates of participants wanting to know their HIV status.
Pronyk et al. (2002)	-VCT registers -Interviews with 18 providers -Mock client encounters	Assessment of the introduction of voluntart counselling and rapid testing	-High level of acceptance among health workers -Quality of VCT was rated very good	

Author(s)	Sample	Goal of study	Main Outcome	Advantages/disadvantages/quality assurance
Sethosa & Peltzer (2005)	Post-testing counselling exit and follow-up interview (n=55, HIV infected)		38 (68.1%) Counselling session in private place	

1.4 Client-initiated Mobile voluntary HIV counselling and testing: Mobile VCT denotes the provision of HIV counselling and testing services by mobile teams from a van equipped with HIV-testing facilities

Author(s)	Sample	Goal of study	Main Outcome	Advantages/disadvantages/quality assurance

1.5 Client-initiated Home-based HIV counselling and testing: Under the home-based VCT approach, HIV counsellors offer HIV counselling and testing services in clients' homes

Author(s)	Sample	Goal of study	Main Outcome	Advantages/disadvantages/quality assurance

2. Routine offer of HIV counselling and testing (also known as provider-initiated VCT) refers to HIV testing and counselling which is recommended by healthcare providers to persons attending healthcare facilities as a standard component of medical care

2.1 Provider-initiated VCT in the context of PMTCT

Author(s)	Sample	Goal of study	Main Outcome	Advantages/disadvantages/quality assurance
Bassett IV et al. 2007	Out of 435 patients referred by physician for HIV testing, 137 completed testing at the VCT site. Out of 2912 patients, subjected to routine HIV counselling, 1414 patients accepted HIV testing.		To evaluate the yield of a routine voluntary HIV testing program compared with traditional provider-referred voluntary counseling and testing (VCT) in a hospital-affiliated outpatient department (OPD).	Routine HIV testing at the point of care in an Outpatient Department can increase case identification by more than 4 times as compared to HIV testing by physician referral (39 vs. 8 new cases per week)