Paper

# Evaluation of HIV Testing and Counseling (HTC) program the detection and Care of HIV patients in a Tertiary centre in Nigeria

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## ABSTRACT

**Background.** WHO recommends evaluation of HTC programme to determine the effectiveness in increasing screening for HIV. These programs are particularly effective in detection and care of people with HIV in a resource limited environment. Evaluation is to be done at the time of planning the strategy and at any time during the program's history. The study objectives are to elucidate the usefulness of HTC in the diagnosis of new cases of HIV,and to assess the contribution of Client-initiated testing and counseling (CITC) and Provider-initiated testing and counseling (PITC) in detection of HIV..

**Methods and Materials.** Information was obtained using a pre-tested questionnaire before and after HIV test from patients presenting for HTC.

**Result.** Ninety-one peopleassessed HTC at ObafemiAwolowo University Teaching Hospitals' Complex, Wesley Guild Unit during the period of 2009 and 2010. Of these, 37.4% (34/91) were HIV positive. Age analysis shows 70.3% (64/91) between 21-40 years old with 32.8% (21/64) HIV positive. Males made up 48.5% (17/34) of those positive. HIV was more among the married (51.2%; 31/56) than singles (8.6%; 3/35), and this was significant (p= 0.000). CIHTC made up 37.4% (34/91) of clients seen while PIHTC was 62.6% (57/91). PIHTC was significantly higher in detection of HIV positive clients (p= 0.001).

**Conclusion.** HIV was detectedin 37% of clients who had HTC. They were mostly married people, and many of them had no plan to disclose to their status to their spouses. PIHTC is of more importance than CIHTC in the detection of new cases of HIV.

**Key words**: HIV, testing and counseling, HIV patients.

## INTRODUCTION

WHO recommends the evaluation of HTC programme to determine the effectiveness of this programme in increasing the proportion of people who know their HIV status and thereby ensuring that people receive HIV care and support. Such evaluation strategy for an intervention (such as HTC) should to be done at the planning stage, and any time after initiation of the programme. This was put in place by the programme initiators at the study centre.

The importance of early detection and care for HIV positive patients cannot be overemphasized, and the need to prevent HIV spread is also of paramount importance in developing countries. More than 80% of people in low and medium-income countries do not know their HIV status 25 years after HIV epidemic,[1] and more than 80% of adults living with HIV live in sub-Saharan Africa. Hence, HTC is needed to halt the spread of HIV in these regions. Prevention with positive (that is, preventing HIV spread by positive clients) through identification and counseling of discordant couples is another important aspect of HTC[1]. HIV testing and counseling is useful in HIV/AIDS surveillance to characterize persons infected with HIV who needs treatment and prevention services.[2]

HIV testing and counseling refers to confidential counseling given to an individual or a group to facilitate a motivated consent for HIV testing and care. Client-initiated HIV testing and counseling, also known as voluntary counseling and testing (VCT), has helped in the detection of HIV infection for more than 20 years[3]. HIV testing and counseling has however been an under utilized tool in the prevention and treatment of HIV. Provider-initiated HIV testing (PIHTC) refers to HTC initiated by health care providers by referring people to HTC centers after a preliminary counseling as to the need for HIV testing.[3] Client-initiated HIV testing (CIHTC) means assessment of HTC service done by clients of their own volition following their own initiatives or advice of friends, relatives, community

organization such as social groups.

WHO and UNAIDS issued a guideline in 2007 on provider-initiated HIV testing and counseling (PITC) in health facilities to increase access to HIV prevention, treatment and care in health care settings such as antenatal care, STI and TB clinics.[4] To improve uptake and make it more available several HTC centers are provided by the government for provider-initiated HIV testing and client-initiated HIV testing. This is part of a global effort to get more people tested and assessing HIV prevention, treatment and care centers.[3]

The study site is the HTC and adult treatment Centre of the adult HIV clinic centre of a Teaching Hospital Complex in Ilesha, Western Nigeria. The center started two and a half years ago. It runs the HIV testing programme components recommended by WHO[5]. The components include:

- Observed written policy for routine provision of pre- and post-test counseling for HIV testing
- At least one counselor trained in pre- and post-test counseling who is assigned to an HIV testing site
- Observed guidelines for content of pre- and post-test counseling
- Observed guidelines or policy on confidentiality of HIV test results
- Observed up-to-date record for clients receiving pre- and post-test counseling
- Observed system linking test results with pre- and post-test counseling
- Visual and auditory privacy possible in all counseling sites.

It provides quality HTC defined as "accessible HTC services that meet the needs of client and providers, in an equitable and acceptable manner, within the resources available and in line with national guidelines."[4]

This facility also has the following as recommended byWHO for effective HTC: Informed consent policy for HIV testing; register with HIV test results; record for clients who receive HIV test results.[6]

This study reports the use of HTC service in an outreach centre in a developing country for detection, care and support of HIV clients. It evaluates how successful HTC has been as an entry point for prevention, care and treatment.[1]

The aim of this study therefore is to assess the contribution of HTC in detection and care of people with HIV in a resource limited environment.

The objectives are to:

(1) Elucidate the usefulness of HTC in the diagnosis of new cases of HIV;

(2) Find out ways of increasing the use of HTC by assessing the contribution of Client-initiated testing and counseling (CITC) and Provider-initiated testing and counseling (PITC).

## MATERIALS AND METHOD

Data was obtained from the clinic records at the HTC centre in the adult HIV clinic at Ilesha, Osun State, south-west Nigeria. HIV care at this center is coordinated by IHVN/PEPFAR (Institute of Human Virology Nigeria/ Presidential Emergency Plan for AIDS Relief).

HTC was done by well trained personnel who gave pre-test and post-test counseling with the use of appropriate referral to the people. HIV test was done using ELISA method. Access to screening was available for both provider-initiated HIV testing and client–initiated HIV testing. People who assessed the service were referred to as clients. A Client-Intake Form for HIV Counseling and Testing was filled for every client. The form consists of records in three (3) sections - pre-test counseling session, post-test counseling session, and informed consent sections.

Data in the pre-test counseling session consists of age, sex, pre-test session type, marital status, education, pregnancy state, number of children, source of knowledge of service, reason for assessing service, previous HIV test and result, pre-test disclosure plan, sex exposure, history of sexually transmitted infections, condom use in last 3 months, condom last sex, and number of sexual partners in last three months.

Data collected in the post-test counseling session are HIV test result, collection of result by clients, discordance in couple, risk reduction plan, post-test disclosure plan, person to whom client will disclose, plan to sensitize partner for test, and referral for care. Records of the four children tested who were below the age of 10 were excluded from the analysis.

The data of client who had HTC done in the year 2009 and 2010 at this centre was collated and analyzed using SPSS 14.0.

## RESULT

Only 91 people accessed this HTC in this centre during the period of 2009 and 2010. Of these, 37.4% (34/91) were HIV positive ($x^2$=11.626; p = 0.001) (OR=0.36; 99% C.I. = 0.22 to 0.59). Risk factors associated with HIV infection were assessed for effective HIV prevention, care and treatment through counseling.

- **Visit to the HTC centre and previous test for HIV:**

All clients seen came to the site for the first time. Most (83.5%) of the clients had no previous screening for HIV. However, clients who have had HIV test done at other centers in the past were 14.3%. Among them, 78.6% had a previous positive result and they were also found positive at this centre.

- **HIV status and demographic factors:**

Age, sex and HIV result: Among those who assessed this centre, 84.6% were between 15-44 years (accounting for 85.3% of those found to be HIV positive). Young people (15-24years) seen made up18.7% (with 11.8% of them HIV positive). Males were 48.4% and females 51.6%. Males made up 50.0% and females 50.0% of those positive.

- **Marital status and HIV test result:**

In this study, more married people had HTC than singles (these are not cohabiting). HIV was more among the married (54.5%; 30/55) than singles (11.1%; 4/36) and this was significant ($^2$=23.220; df=5; p= 0.000) (See Table I). The only client cohabiting was HIV positive. Married clients with children are 55 with a total of 54 children alive. No single client has any child yet and none of the clients was pregnant

- **Level of education and HIV result:**

incidence of HIV had an inverse relationship with HIV positivity with 85.7%, 46.9%, and 14.7% of those with primary, secondary and tertiary education affected respectively (p= 0.000).

- **HIV status and factors affecting testing**

Pre-test session type and couple type:

97.8% (89/91) of clients had individually based HTC and 2.1% (2/91) had couple-based HTC. The couple is in a monogamous setting. Husband came based on an initial positive testing result of the wife in another HCT centre.

- **Source of knowledge of service:**

Although self-referred clients who came on their own volition were 37.4%, they constitute only 5.7% of HIV positive clients. However, those referred from Dermatology and Venereology (Sexually Transmitted Infections) clinic made up 33.0% (30/91) of clients but this led to detection of 50.0% (17/34) of positive HIV cases. CIHTC made up 59.3% (54/91) of clients seen while PIHTC was 40.7% (37/91). PIHTC was significantly higher in detection of HIV ($^2$= 13.009, P = 0.000).

- **Reason for testing:**

Clients who came for HTC as part of regular health maintenance were 37.4% (34/91). None of them were positive. Clients with clinical diagnosis of HIV were 34.1% (31/91) and 48.4% (15/31) of these had positive result. Hence, PIHTC is useful in the diagnosis and care of HIV (See Table II).

- **Pre-test disclosure plan, post test disclosure plan and HIV result**

72.5% of clients had plans to disclose their status pre-test, and 33.3% of them were found positive. They constituted 64.7% (22/34) of those positive. Those entire positive still had plans to disclose after the test due to effective HTC which encourages and counsels patients on importance of disclosure for adequate care and support for their status. (See Table II). Among the 27.5% who planned not to disclose their status before the test, 91.7% still had no plan to disclose their status post-test though they were positive. Of these, married persons were 45.5% (with 40% in monogamous setting and 60% in polygamous setting). Among those who plan to disclose post-test, only 26.9% plans to disclose to their sexual partner their HIV + status. Hence, disclosure will not be done to spouses or sexual partners in many cases but to relatives.

- **Risk factors and HIV test result.**

HIV result and number of partners in last 3 months: For those with 1 sexual partner, 40% were HIV+ while 35.3% of clients with 2 sexual partners were positive. Clients with 3 partners each in the last 3 months were HIV positive (p=0.365).

HIV result and condom use in last 3 months: assessment of condom use in last 3 months among HIV+ clients shows that 54.3% of those with HIV+ result never used condom within last 3 months of sexual activity. Condom was sometimes used in a further 22.9%. (p=0.240).

- **HIV result and condom use in last session of sex:**

Those who did not use condom in the last sexual exposure among HIV+ clients were 68.6% and those who used it were 22.9%. The remaining 8.6% cannot remember using condom (p=0.328).

- **HIV result and sexually transmitted infections:**

73.9% of clients with previous history of sexually transmitted infections (STIs) have HIV. Those with STI in the past made up 25.3% of the clients seen. A significant relationship was found between STI and HIV infection (p= 0.000).

## DISCUSSION

The Sub-Saharan Africa region has the highest incidence, prevalence, newly-infected and people living with HIV rates in the world and AIDS is the leading cause of death in this region.[6,7,8] About 33.3 million are living with HIV.[8]Preventing the spread depend on effective HCT.

## TABLES

| Age and HIV status | | | |
|---|---|---|---|
| Age | HIV result | | Total |
| | +ve | -ve | |
| 15-24 | 2 | 15 | 17 |
| 25-34 | 10 | 22 | 32 |
| 35-44 | 17 | 11 | 28 |
| 45-54 | 4 | 4 | 8 |
| 55-64 | 0 | 4 | 4 |
| 65-74 | 1 | 1 | 2 |
| Total | 34 | 57 | 91 |
| ($\chi^2$=14.863; df=5; p= 0.011) | | | |

| Sex and HIV status | | | |
|---|---|---|---|
| Sex | HIV result | | Total |
| | +ve | -ve | |
| Male | 17 | 27 | 44 |
| Female | 17 | 30 | 47 |
| Total | 34 | 57 | 91 |
| ($\chi^2$ =0.059; df=1; P = 0.808) | | | |

| Marital status and HIV status | | | |
|---|---|---|---|
| Marital status | HIV result | | Total |
| | +ve | -ve | |
| Single | 4 | 32 | 36 |
| monogamous | 17 | 18 | 35 |
| polygamous | 8 | 5 | 13 |
| divorced | 1 | 1 | 2 |
| widowed | 4 | 1 | 5 |
| Total | 34 | 57 | 91 |
| ($\chi^2$=23.220; df=5; p= 0.000) | | | |

| Level of education and HIV status | | | |
|---|---|---|---|
| Level of education | HIV result | | Total |
| | +ve | -ve | |
| illiterate | 0 | 1 | 1 |
| primary | 6 | 1 | 7 |
| secondary | 23 | 26 | 49 |
| university | 5 | 29 | 34 |
| Total | 34 | 57 | 91 |
| ($\chi^2$=17.570; df= 1; p= 0.000). | | | |

**Table I:** HIV status and demographic factors

| Source of Referral | HIV result | | Total |
|---|---|---|---|
| | +ve | -ve | |
| CIHTC | 12 | 42 | 54 |
| PIHTC | 22 | 15 | 37 |
| Total | 34 | 57 | 91 |
| ($\chi^2$= 13.009; p = 0.000) | | | |
| Previous HIV test | HIV result | | Total |
| | +ve | -ve | |
| not tested before | 23 | 53 | 76 |
| yes, HIV+ | 11 | 0 | 11 |
| yes, HIV- | 0 | 3 | 3 |
| no answer | 0 | 1 | 1 |
| Total | 34 | 57 | 91 |
| ($\chi^2$ =22.464; df=3; p=0.000) | | | |
| Reason for testing | HIV result | | Total |
| | +ve | -ve | |
| Confirm HIV test | 9 | 0 | 9 |
| HIV +ve partner | 3 | 1 | 4 |
| Clinical diagnosis | 15 | 16 | 31 |
| Feels unwell | 6 | 4 | 10 |
| Regular health check | 0 | 34 | 34 |
| Spouse illness/death | 1 | 2 | 3 |
| Total | 34 | 57 | 91 |
| ($\chi^2$=41.611; df=5; p=0.000) | | | |
| Pre-test disclosure plan | HIV result | | Total |
| | +ve | -ve | |
| will not disclose | 12 | 12 | 24 |
| plans to disclose | 22 | 44 | 64 |
| no answer | 0 | 1 | 1 |
| Total | 34 | 57 | 91 |
| ($\chi^2$=2.692; df=2; p=0.260) | | | |
| Post-test disclosure plan | HIV result | | Total |
| | +ve | -ve | |
| will not disclose | 11 | 13 | 24 |
| plans to disclose | 23 | 44 | 67 |
| Total | 34 | 57 | 91 |
| ($\chi^2$=0.999; d=1; p=0.317) | | | |

**Table II:** HIV status and factors affecting testing

HIV counseling and testing (HCT) is the process by which an individual, couple, or family receives HIV testing and counseling on HIV prevention, treatment, care, and support.[9] HCT involves four steps: pretest counseling on the testing process; assessment of each individual's risk-behavior; informed consent from each participant; and post-test counseling based on the test result(s).[6]

The number of clients that accessed this service within the time frame of this study is considered to be low. Low coverage of HIV testing has been documented in some studies. The median percentage of people living with HIV who know their status using the findings of 10 population-based surveys is less than 40%. HIV may be in the early stages of infection and have not yet developed a sufficient level of antibodies that can be detected by serological testing ('window period') [11]

Hence, re-testing may be done for those with risk of infection. Re-testing among persons who have previously been tested and learnt their results is not recommended as this may lead to depletion of resources.[12] HTC for clients coming for repeat test needs to be thorough to help those testing positive accept their status and access

| Ever had sexual exposure | HIV result | | Total |
|---|---|---|---|
| | +ve | -ve | |
| No | 1 | 1 | 2 |
| Yes | 32 | 46 | 78 |
| no answer | 1 | 10 | 11 |
| Total | 34 | 57 | 91 |
| ($\chi^2$=4.341a; d=2; p=0.114) | | | |
| Ever had sexually transmitted infections | HIV result | | Total |
| | +ve | -ve | |
| No | 17 | 51 | 68 |
| Yes | 17 | 6 | 23 |
| Total | 34 | 57 | 91 |
| ($\chi^2$=17.570; d=1; p=0.000) | | | |
| Number of sexual partners in last 3 months | HIV result | | Total |
| | +ve | -ve | |
| None | 5 | 10 | 15 |
| One | 21 | 34 | 55 |
| Two | 6 | 11 | 17 |
| Three | 2 | 0 | 2 |
| Total | 34 | 55 | 89* |
| ($\chi^2$=3.447; df=3; p=0.365) *Number with answer in client intake form. | | | |
| Condom use in last 3 months | HIV result | | Total |
| | +ve | -ve | |
| Never | 18 | 24 | 42 |
| Always | 4 | 15 | 19 |
| Sometimes | 8 | 10 | 18 |
| Total | 30 | 49 | 79* |
| ($\chi^2$=3.055; df=2; p=0.217) *Number with answer in client intake form | | | |
| Condom use in last sex | HIV result | | Total |
| | +ve | -ve | |
| No | 23 | 29 | 52 |
| Yes | 8 | 19 | 27 |
| not indicated | 3 | 9 | 12 |
| Total | 34 | 57 | 91 |
| ($\chi^2$=2.522; df=2; p=0.283) | | | |

**Table III:** HIV status and sexually related risk factors

further care and support.

The young group of a population represents the economic strength and continuity of a population. Most of the clients seen were less than 44 years and the high prevalence of HIV found among them show the need to get more people to screen for effective prevention and control of HIV. Young people (15-25 years) found positive were 5.9% of new cases though as much as 45% of new HIV cases seen in 2007 were between 15-25 years.[13]

The youth constitute the largest group screened. Private health practitioners provide much of the primary care that is delivered in West Africa and Asia, and youth report that their chief sources of information and services are often pharmacists, traditional healers, and nurses in private practice.[14] Training private health practitioners to improve VCT services for youth may be a viable strategy but this has not been utilized.[15]

This study shows a slight female preponderance in the sex of those tested. It has been widely reported that men are not fully involved in HIV prevention programs.[16,17,18] In a society were males are considered as the main decision makers in the family, there is need for improved programs to ensure more males are tested.

Most of the HIV positive client had less than university education. HIV infection has been found to be associated with poverty and illiteracy. HCT must be provided in ways that can enlighten the uneducated and less educated to assess it. Though many have heard about HIV, many are ignorant about their personal risk factors to HIV infection.

The study shows that the target population that will need more intervention in ensuring they screen. This is the married population. It showed that married people are accessing HCT more and is similar to findings in some studies.[16,19] Singles have been considered to be more prone to HIV.[20] The low rate of HIV positivity in the single could be as a result of poor assess, lack of knowledge of the HCT or a change in attitudinal habits of singles towards less risky exposure. Married people were seen more probably because of the responsibility conferred on them as they have dependants. The number of children also shows the degree of burden due to HIV infection as this number of children will be affected by the morbidity and mortality due to HIV if their parents HIV status are not detected and cared for.

Sexual transmission accounts for about 80% of all new infections.[21] Most of the new HIV infections in Africa have been found to occur in cohabiting couples.[22,23,24,25,26,27]. Couple testing is therefore of paramount importance. HTC has been known to reduce unprotected sexual exposure by HIV positive individuals and among serodiscordant couples.[28]

Couple and group based HTC is still little practiced. These types of HTC would help make disclosure more practicable. The result shows the need for more couple testing because of possibility of discordant results and effect in reducing new infections and transmission. PI-

| Source of Referral (Source of knowledge of service) | HIV result | | Total |
|---|---|---|---|
| Client-initiated HIV testing and counseling (CIHTC) | +ve | -ve | |
| Self | 2 | 32 | 34 |
| Positive spouse/parent | 3 | 1 | 4 |
| Community organization/Non-Governmental Organization | 1 | 0 | 1 |
| HIV client on treatment at the centre | 0 | 4 | 4 |
| friend / relative | 6 | 5 | 11 |
| **Provider-initiated HIV testing (PIHTC)** | +ve | -ve | |
| On admission for an illness | 1 | 0 | 1 |
| General Outpatient Department | 1 | 1 | 2 |
| TB DOT centre | 2 | 0 | 2 |
| Dermatology and sexually transmitted infections clinic | 16 | 14 | 30 |
| Hospital laboratory | 1 | 0 | 1 |
| Antenatal clinic/Health care worker | 1 | 0 | 1 |
| Total | 34 | 57 | 91 |
| ($\chi^2$=34.057; d=10; p=0.000) | | | |

**Table IV:** Source of knowledge of HTC service and HIV status

HTC can help in increasing couple type of testing when clients are encouraged to bring their spouses to have HTC done.[29,30] Spouses will help to provide care and support for those infected and also reduce spread of HIV.

PIHTC was significantly higher in detection of HIV in this study. In 2002, the WHO advocates that health-care workers should provide testing and counseling in existing health-care settings such as antenatal, tuberculosis and sexually transmitted infections clinics rather than the previous approach of testing only individuals who seek such services.[31] Increasing outreach programs by voluntary HTC teams to the community including schools can help to increase access to testing and care.[32]

Preventing HIV spread by those positive (referred to as prevention with positives) is of paramount importance. This involves positive clients taking steps not to infect others.[33,34] Disclosure plans are vital to achieving this by making sexual partners co-operate in preventive measures such as condom use and care and support of those positive. Counseling was found to have helped clients in making decision to disclose their status. Most clients planned to disclose their status. Those with pre-test plan to disclose their status whether positive or negative still planned to disclose their status after the test.

There was no significant relationship between the number of sexual partners in the last three months, condom use in last three months, condom use in last sex, and HIV status. History of sexually transmitted infection was found to be significantly associated with HIV infection. This further buttress previous findings that sexually transmitted infections predisposes to HIV infection.

HIV testing and counseling is an effective tool in diagnosing new cases of HIV. Young people, married, and those with low educational status accessed HTC more. This study reveals a need for more PIHTC in the detection and care of HIV. Hence, more providers need to be trained in helping people assess HTC. Feedback is needed to see if the people tested assess the treatment and support services they were referred to from HTC centers. It also shows that more married clients seek HTC albeit all alone and almost half had no plan to disclose to their partners.

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