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RESEARCH ARTICLE

UPTAKE OF PROVIDER-INITIATED TESTING AND COUNSELLING (PITC) AT THE UNIVERSITY OF PORT HARCOURT TEACHING HOSPITAL (UPTH), PORT HARCOURT, NIGERIA

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ABSTRACT

Background: To increase HIV detection in countries with high HIV prevalence, UNAIDS/WHO/CDC recommends provider-initiated testing and counselling (PITC) strategy for HIV screening. The aim of this study was to assess the uptake of the PITC program, determine the HIV case finding among the population and the proportion of those who tested HIV positive that were enrolled into care and treatment. **Method:** All patients (aged 0-18years) who visited the children out-patient department of UPTH, who met the inclusion criteria and did not opt out were offered PITC for HIV after an initial screening with Bandason screening tool. Data was analysed and presented in prose, frequency tables and pie chart; chi square was used to compare categorical data while p value of < 0.05 was considered statistically significant. **Results:** Among the 5,697 children who were eligible for the study, 1,117 (19.6%) were screened out using Bandason screening tool while 4,558 (80.0%) accepted HIV testing. Of the 4558 participants who were tested for HIV,303 (6.65%) were found positive. All (100.0%) of those that tested positive were enrolled in care and treatment in the Paediatric HIV clinic of UPTH and other centres. Among the children who were HIV positive, majority 105 (34.65%) were aged 1-5years and this was statistically significant (X^2 =29.59, p=0.001). **Conclusion:** PITC uptake for HIV was highly acceptable and has a good case finding rate. All patients found to be positive were linked to care and treatment. Public health initiatives (such as the PITC strategy) that facilitate early detection of HIV and referral for early treatment should be encouraged for broader HIV control and prevention in Nigerian communities.

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INTRODUCTION

HIV/AIDS is a leading cause of childhood morbidity and mortality especially in sub Saharan Africa, (GBD, 2015) however, early detection of a person's HIV status, aids early treatment and leads to prevention of devastating complications associated with HIV/AIDS (Chesney, 1999) Over 90% of Paediatric HIV/AIDS infection is due to mother-to-child transmission (MTCT) but with the non availability of prevention of mother-to-child transmission (PMTCT) services in many health facilities and poor antenatal care utilization in many low-income countries, universal coverage of PMTCT programmes in many high HIV prevalence settings is yet to be achieved, (Kohler *et al*., 2014; Deressa *et al*., 2014; Sagna *et al* 2015) so mothers and their infant pairs are not diagnosed and detected early for HIV. Also, Failure to consider long-term survival following vertical HIV infection and the poll of sexually active adolescents who acquire the infection horizontally results in missed HIV screening opportunities for timely diagnosis, and increases the risk of mortality and development of severe, irreversible long-term complications (Shriver, 2000). Voluntary counselling and testing of HIV was introduced for people in areas with high HIV burden to overcome this challenge, however, despite this, more than half (60%) of the adolescents and children do not know their HIV status and many who live with the disease are ignorant of it (Joint United Nations Programme on, 2013). Due to this, many people living with HIV miss the opportunity for early detection and timely treatment, and this also play an important role in the spread of the virus (Marks *et al*., 2006). Provider initiated testing and counselling (PITC) or "opt out" strategy refers to a routine offer of HIV testing and counselling for all patients who visit a health facility by a health professional (particularly in HIV endemic communities), irrespective of the presenting symptoms, and without a separate written consent (WHO, 2007) Individuals who refuse to be tested for HIV can opt out hence PITC is also known as the "opt out" strategy (World Health Organization). This strategy was recommended by the Joint United Nations Programme on HIV/AIDS/World Health Organization

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(UNAIDS/WHO),including the Centre for Disease Control, CDC for all patients to increase the number of people who test for HIV, as symptoms of acute HIV infection are often missed by primary care clinicians since these symptoms are similar to those of many acute childhood diseases and viral illnesses including influenza (Weintrob, 2007) With this intervention, a major tenet of primary health care which is preventive health care services is made available to patients (Marks *et al*., 2006; WHO, 2007). Since initiation of the PITC strategy in Nigeria it has been operational at varying degrees in many centres in Nigeria. In a Nigerian study conducted among a cohort of university students it was found that the opt out strategy was feasible and highly acceptable (Ijadunola).It has also been employed successfully in other developing countries with high HIV prevalence. Studies from South Africa, (Leon, 2010) Uganda, (Kankasa *et al*., 2009) and Zambia (Wanyenze *et al*., 2008) showed that PITC strategy (opt-out) increased the proportion of patients who tested for HIV and the number of patients who commenced anti-retroviral therapy. These studies also showed that PITC was highly acceptable and feasible in the health facility. PITC is operational at varying degree in many resource limited countries due mainly to resource constraints. An initial screening tool with proven sensitivity, specificity and easy to administer known as the Bandason screening tool (Bandason, 2016) is used to identify those at risk of being HIV-infected and then offering HIV testing to those who screen positive. This reduces the number that would need to undergo HIV testing, but increases the yield and reduces the cost of screening. The screening consists of four validated questions and a yes to any of the question qualifies the child to be tested for HIV.

At the UPTH, PITC became fully operational in 2012 and children and their caregivers are offered this service routinely following Bandason screening. The objective of this study is to assess the uptake of the PITC program, to determine the HIV case finding among the population and the proportion of those who tested HIV positive that were enrolled into care and treatment at the Paediatric HIV clinic of the UPTH.

METHODOLOGY

The study was conducted over 18months period from January 2017 to June 2018 at the Children outpatient (CHOP) clinic of the University of Port Harcourt Teaching Hospital, Port Harcourt. All children aged 0–18 years who attended the CHOP for any reason were offered HIV testing. HIV testing. Prior to HIV testing, all participants (caregiver or child) who met the inclusion criteria underwent a screening using the standardized Bandason screening tool. This screening involved responding to four questions asked by lay healthcare assistants and includes;

- Has the child been admitted to hospital before?
- Does the child have recurring skin problems?
- Are one or both parents of the child deceased?
- Has the child had poor health in the last 3 months?

A yes to any of these questions, qualify the child or caregiver to be tested for HIV. HIV testing was carried out with guardian consent and child assent for children 7years and above using the rapid diagnostic tests (RDTs) kits. Rapid test kits (RTKs) were used to carry out the tests, using the serial testing algorithm recommended by the National guidelines. ((National guideline for HIV 2016).

Determine test kits were used for initial screening. If a result was negative, it would be given to the patient as HIV-negative. If the result obtained was positive, the blood sample was tested using the Unigold test kit. If the second test was also positive, the result was given to the client as HIV-positive. If the second test, however, was negative, the Stat-Pak test kit was then used as a tiebreaker, and the result, positive or negative, was given to the patient as the decisive one. Children less than 18months who tested positive to the RDTs (HIV exposed children) had a dried blood spot (DBS) specimen collected for DNA PCR test to confirm their HIV status. Children who had a documented HIV test result from the past 6 months, or were known to be HIV positive, were excluded from this study.

The age, sex, contact numbers, home addresses and HIV test result were collected on standardized forms. Data was entered into an excel sheet and analysed using epi info version 7. All Patients received posttest counselling irrespective of their HIV test result while those who were HIV positive were linked to treatment and care centres closest to them and followed up using some volunteers, social workers, community health workers and phone calls until the desired result was achieved. Result is presented in prose, frequency tables and pie chart; chi square was used to compare categorical data while p value of < 0.05 was considered statistically significant. The study was approved by the research and ethics committee of the University of Port Harcourt Teaching Hospital. Consent procedures for HIV testing of participants followed the Nigerian Guidelines for HIV Testing and Counselling in Children (National guideline for HIV 2016).

RESULTS

A total of 6,388 children were seen in the Children out-patient (CHOP) department of Paediatrics over the study period, the HIV status of 691(10.82%) children were known and so were excluded from the study, 5697 children were screened using the Bandason screening tool, 1,117 (19.6%) were screened out as low risk and 4,580 children were qualified to be tested for HIV. Out of this, 22 (0.5%) opted out while 4558 were tested for HIV giving a HIV screening uptake rate of 99.5% among the children screened for HIV, 2227 (48.86%) were aged from 1-5 years while 101 (2.22%) were older than 15 years as shown in table 1.

HIV case finding among the study population: Figure 1 shows that 303 (6.65%) of those tested were found to be HIV positive. All (100.0%) of those that tested positive have been enrolled in care and treatment in the Paediatric HIV clinic of UPTH and other centres. Only 129 (42.6%) of them are receiving treatment and follow up at UPTH. Of those who enrolled into treatment at our centre, 90.0% of them got enrolled within 60days.

HIV status of the study population by gender and Age: Table 2 show that of those who were HIV positive, 144 (47.52%) were males and there was no statistically significant difference between the HIV status and gender. Among the children who were HIV positive, 105 (34.65%) were aged 1-5years while 78 (25.74%) were less than one year of age. There was a statistically significant difference between the HIV status of the children and their age. ($X^2 = 29.59$, $p=0.001$)

DISCUSSION

This study found a PITC uptake rate of 99.5% and an opt out (resistance) rate of 0.5%. Though no previous study on the

uptake rate by other methods of HIV screening at this centre was found, this uptake rate is high.

Table 1. Demographic Distribution

Variables	Frequency (n = 4558)	Percentage
Gender		
Male	2409	52.85%
Female	2149	47.15%
Age Group		
< 1 year	826	18.12%
1 - 5 years	2227	48.86%
6 - 10 years	849	18.63%
11 - 15 years	555	12.18%
> 15 years	101	2.22%

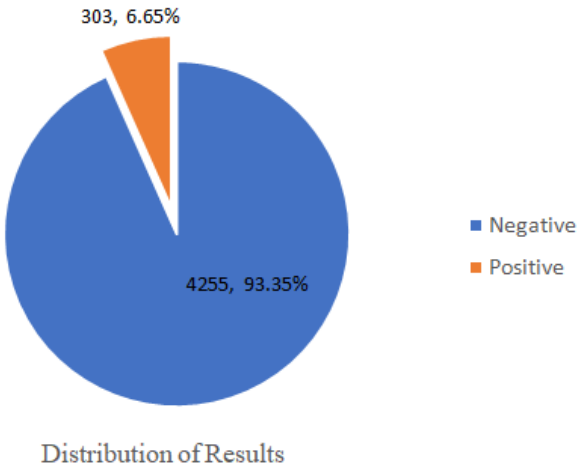

Figure 1. HIV case finding among the study population: HIV status of the study population by gender and Age:

Table 2. HIV status of the study population by gender and Age

Gender	Positive (n, %)	Negative (n, %)	Chi-square (p-value)
Male	144 (47.52)	2274 (53.13)	*3.52*
Female	159 (52.48)	2009 (46.87)	*0.0588*
Total	303 (100.0)	4255 (100.0)	
Age groups			
<1 year	78 (25.74)	748 (17.58)	
1 – 5 years	105 (34.65)	2122 (49.87)	29.59
6 – 10 years	65 (21.45)	784(18.43)	(0.001)*
11 – 15 years	44 (14.52)	511(12.01)	
>15 years	11 (3.63)	90 (2.12)	
Total	303 (100.0)	4255 (100.0)	

*Distribution is statistically significant

Similar to the findings of this study, Kankasa *et al*. (2009) found an uptake rate of 87.4% among children at the university Teaching hospital in Zambia while Wanyenze *et al*. (2008) found a HIV uptake rate of 98% in two Ugandian hospitals and identified many previously undiagnosed HIV infections. Kennedy *et al*. (2013) in a systematic review also found that PITC clearly improves HIV testing uptake across the different settings studied. These findings show the effectiveness of the PITC strategy as a HIV detection tool if well implemented. These studies (Kankasa *et al*., 2009; Wanyenze, 2008; Kennedy *et al*., 2013) from around sub-Saharan Africa also showed that resistance by patients to PITC is very low as was found in this study, resulting in high uptake rate. The effectiveness of PITC as a strategy to increase uptake of HIV testing is therefore not in doubt. In this study, the HIV status of only 10.82% of the children who visited the Paediatric outpatient department was known by their caregivers. This observed low knowledge rate of HIV status is rather worrisome and may be a reflection of what obtains in the larger community as many parents do not know the HIV status of their children. There is limited study on aldolescent/parental awareness of the HIV status of themselves/their children for effective comparism, however, among adults in other African countries, it ranges from 47 – 63% (Kalichman, Rakgoasi, Lori *et al*., 2011). How this self-knowledge of HIV status affects sexual behavior is a different ballgame as studies have found conflicting results (Kalichman, Rakgoasi, Lori *et al*., 2011) With the PITC strategy in this study, a further 99.5% of the participants became aware of their HIV status or that of their children, and this is a welcomed development especially if this PITC strategy will be further strengthened. In a case-controlled study among patients with STI in South Africa, there was 56.4% increment in the self-awareness of HIV status when the PITC method was adopted (Leon *et al*., 2010).

Children aged 0-5 years constituted nearly 70% of those that were screened in this study with those aged 1-5 years constituting a significant proportion of them. Though childhood illness are common in this age group, it is surprising that despite PMTCT services, the HIV status of a large pool of this magnitude was unknown prior to this screening. This highlights the need for HIV screening of children beyond infancy and the need for coordination and integration of the various HIV programs instead of having parallel ones if the HIV scourge must be solved holistically. Though all ages must be screened, this pre-school age constitute a large poll that must be targeted in PITC services in this environ. Increasing HIV case finding is critical towards achieving universal access to care and treatment services and PITC could be an effective approach (Topp *et al*., 2011). In this study, 303 (6.65%) new patients were diagnosed with HIV and this is quite large over a one and half year period from routine PITC outpatient HIV screening. The integration of PITC into routine OPD care in Zambia substantially increased case finding of HIV positive patients (Topp *et al*., 2011 and Silvestri *et al*., 2011) and Systematic reviews have demonstrated the importance of PITC in identifying undiagnosed HIV infections (Suthar *et al*., 2013 and Roura *et al*., 2013). For this study, It is difficult to ascertain if there was an increase in case finding since there is no background study on VCT at this centre, this study has however formed a baseline for future comparisons. In Paediatric PITC, HIV testing is also offered to the parents and or the caregivers of the children, so there is new or increased case finding among adults as well, however, this is not part of this data analysis. HIV screening does not only detect individuals with HIV but also reveals the HIV status of those who are negative. Studies have reported other benefits of routine HIV testing for identification of previously undiagnosed HIV positive cases, i.e. increased knowledge of HIV status and reduction of risk behavior (Kiene *et al*., 22010; Bassett *et al*., 2007 and Wanyenze *et al*., 2010) through Posttest counselling of adolescents and caregivers who are sexually active to avoid engaging in risky sexual behaviours and consistent condom use thereby reinforcing positive lifestyle and safer sexual behavior. In this study, all newly diagnosed cases of HIV were referred for care and treatment and 100% of them have commenced treatment at different HIV treatment centre within the state. Only 129 (42.6%) of them are receiving treatment and follow up at our centre. Of those who enrolled into treatment at our centre, 90.0% of them got enrolled within 60days. Kayigamba *et al* found an enrolment rate of 42% into care and treatment within 90 days of HIV

diagnosis in eight Rwandan Health facilities, while a study from South Africa reported an 85% enrolment rate (Losina, 2010). Other studies from sub-Saharan Africa (SSA) among people diagnosed with HIV at VCT centres or out-patient departments (Nakigozi, 2011; Kranzer *et al*., 2010; Rosen, 2011) reported enrolment proportions, varying from 55% in Durban (South Africa) (Losina, 2010) to 68% in South West Uganda (Nakigozi, 2011). Enrolment into and initiation of care and treatment of newly diagnosed HIV cases is key to controlling the HIV scorge. Improving linkage to care and treatment after HIV diagnosis is needed to hamess the full potential of ART, else, making the diagnosis will add little to HIV prevention. This requires a team approach, commitment and concerted efforts among the key stake holders and health workers, including, social workers, nurses, community health workers, use of phone calls, home visits, and every available measure until this is achieved. Some of the patients who were diagnosed at this centre ignored initially several efforts made by the health team to get them enrolled only to present when they developed the symptoms of HIV disease. Achieving a 100% enrolment rate may be a herculean task but must be a key goal at every centre where PITC is practiced.

In this study, more females than males were HIV positive but this was not statistically significant as is found in another study (Pufall *et al*., 2014). Significantly more of the younger children were found with HIV, this is contrary to the report of Pufall *et al* (36) who found no age or sex difference in HIV prevalence among children in East Zimbabwe. Children aged 1- 5 years had the highest HIV burden with a steady decline thereafter as the age increased. In this study, HIV was detected in all the age group but much more among the younger children with 81.84% being aged 0-10years. This finding supports the known fact that 90% or more of Paediatric HIV infection is via mother to child transmission (MTCT) (United Nations General Assembly) This high prevalence among young children is not without untoward effects because children are more likely to have severe and rapidly progressive disease and those aged 0–4 years living with HIV are more likely to die than any people living with HIV of any other age (Unicef 2016) This finding also means that prevention of mother to child transmission (PMTCT) coverage is poor in this region . PITC program and PMTCT services must therefore run together and never parallel to increase HIV case detection among young children. In conclusion, PITC uptake is high at the UPTH, there was significant case finding especially among children aged 0-5 years. Enrollment into care and treatment was very good and must be the target of all PITC program. While PMTCT coverage is being scaled up, all children especially those aged 0-5 years must be a key target of PITC program in this region.

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