

## ORIGINAL ARTICLE

## Paediatric HIV Test in a South-Eastern Tertiary Centre: Does Provider Initiated Testing and Counseling Increase the Uptake Rate?

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## DISCLOSURE

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## ABSTRACT

**Background:** Provider Initiated Testing and Counseling (PITC) encourage early detection of Human Immunodeficiency Virus (HIV) infection and prompt treatment once diagnosis is confirmed. It was primarily designed to augment the universal screening of clients at presentation to a health facility. Sustaining PITC in health facilities appears to be facing numerous challenges with reduction of testing rates. **Objectives:** The study was carried out to determine the rate of uptake of HIV testing prior to and during PITC era, and to assess the influence of PITC on HIV testing rate in children at the service points of the hospital. **Methodology:** Data were extracted from clinical records of all children (aged below 18 years) who presented in our centre Nnamdi Azikiwe University Teaching Hospital (NAUTH) Nnewi, Nigeria from March 2005 to December 2010 (era of voluntary counseling and testing); and from January 2010 to March 2015 (era of PITC) using questionnaires. Analysis was done with SPSS version 20.

**Results:** Out of a total of 76,825 children who presented to the hospital from March 2005 to March 2015, seven thousand five hundred and three children (9.8%) were tested for HIV. The highest uptake of HIV testing was 18.7% recorded in 2011, with subsequent decline until 2015 (11.8%). There was significant association between year of testing and result of tests ( $P=0.001$ )

**Conclusion:** Provider initiated testing improved the uptake of HIV testing in our centre when compared to voluntary testing, but this was not sustained

**Key words:** Voluntary Counseling and testing, HIV screening, Infectious diseases, Communicable diseases

## INTRODUCTION

Provider initiated testing was introduced by the World Health Organization in 2007 to improve testing and early detection of Human Immunodeficiency Virus (HIV) in children and adults.<sup>1</sup> This strategy was

thereafter adopted by the Federal ministry of Health Nigeria in 2010 and was commenced at Nnamdi Azikiwe University Teaching Hospital (NAUTH) Nnewi in 2011.<sup>2</sup> In the past, most strategies relied on client-based testing and counseling; voluntary

testing, diagnostic-based testing for patients with symptoms suggestive of HIV, ante-natal screening, pre-marital screening and pre-school entrance screening.<sup>3</sup> The advantage of provider-initiated testing anchors mainly on the early detection of HIV infection and this is a major gateway of prompt treatment and care for infected clients and prevention for uninfected clients. Although appreciably high uptake rates of testing were reported, missed opportunities for HIV screening remains a major challenge.<sup>4</sup> The perceived unimportance of testing asymptomatic clients, fear of stigmatization and disclosure of status are major factors implicated in most missed opportunities.<sup>5</sup>

Provider-initiated testing and counseling was designed to mitigate the missed opportunities and to mop up children missed by Prevention of Mother-To-Child Transmission (PMTCT) of HIV program as it targets a larger spectrum of clients especially at contact with health facilities, irrespective of their reason for presentation.<sup>6</sup> It is speculated that refusal for HIV testing is less in provider-initiated testing compared to client based voluntary testing.<sup>7</sup> Improved uptake rates of provider based tests offers better survival of infected children, and prevention of infection among high risk infants. Scaling up of testing appears to be higher with provider-based testing compared to previous strategies but different observations have been reported in some centres.<sup>8</sup>

The objectives of this study was to determine the uptake rate of HIV testing prior to and after PITC (provider initiated testing and counseling) era, and to assess the influence of PITC on HIV testing rate in children presenting at our institution.

## METHODOLOGY

### Study Area

The study was done at Nnamdi Azikiwe University Teaching Hospital Nnewi, a multi specialty tertiary centre in Anambra state Nigeria. The hospital offers HIV treatment, care and prevention in collaboration initially with the Institute of Human Virology Baltimore, Maryland USA but presently with

Family Health International, a non Governmental Organization. Testing sites are incorporated at different service points of the hospital. HIV testing and counseling is offered free of charge.

### Study Design and Population

The study is a combination of prospective and retrospective cross-sectional design of children who presented at the Children outpatient and Children Emergency Units of the hospital from March 2005 to March 2015. Provider-initiated testing and counseling was commenced in the hospital in January 2011.

All children who presented in the hospital were tested for HIV with pre and post testing counseling sessions offered. Pre-testing counseling sessions were conducted for both parents and children in groups while post-testing sessions were individualized. Children were tested at service points in the Children Emergency room, children outpatient units and children ward.

Rapid antibody test was utilized for screening children using the serial testing algorithm. It consists of *Determine test strip*<sup>®</sup> (Abbott laboratory Illinois, USA) for screening, *Uni-Gold*<sup>®</sup> (Trinity Biotech Wicklow, Ireland) for confirmation and *Stat Pak*<sup>®</sup> (Chembio Diagnostic systems) for discordant results. Children who tested negative with *Determine test strip*<sup>®</sup> were not subjected to further testing. Those who tested positive were subjected to another test with *Uni-Gold*<sup>®</sup>. Discordant results were tested with *Stat Pak*<sup>®</sup>.

### Ethical Issues

Patients' confidentiality was strictly observed. Oral consent was obtained from the caregivers, and also assents from children older than 7 years. Ethical approval was obtained from the Institution's Ethics Committee.

Children below 18 months of age who tested sero-positive were referred for DNA Polymerase Chain Assay for early infant diagnosis. Infected children were referred to HIV/AIDS Unit for treatment while non-infected clients were counseled on prevention

strategies to help maintain sero-negative status.

**Data Collection**

Information on children (below 18 years of age) screened during the Voluntary Counseling Testing (VCT) period were extracted from the registers over the period March 2005 to December 2010. The registers were retrieved from the records unit of the HIV Testing Unit of the hospital.

The data of children tested at service points during the provider-initiated testing and counseling period were collated with study questionnaires from January 2011 to March 2015.

Data were collected on age, sex, year of testing, point of testing, and outcome of the tests. The year of testing was grouped into two sub-groups (a) 2005-2010 and (b) 2011-2015, representing the VCT and PITC periods respectively. The age of the children were

categorized as follows: 0-18 months, 19-59 months, 5-11 years and 12-18years according to standard classification of paediatric age groups.<sup>9</sup> This was cross-tabulated with the year of testing (Pre and Post PITC era) and outcome of results.

Data were analyzed using Statistical Package for Social Sciences software version 21 (IBM Corporation Chicago, Illinois USA). The test of significance was assumed at *P*-value < 0.05. The results were shown with chart and tables.

**RESULTS**

A total of 76,825 children presented during the study period, out of which 7,503 (9.78%) were screened. This is shown in Table 1.

Table 2 shows the number of children tested from March 2005-2015. There was a significant association between year of testing and uptake of HIV testing (*P*=0.001)

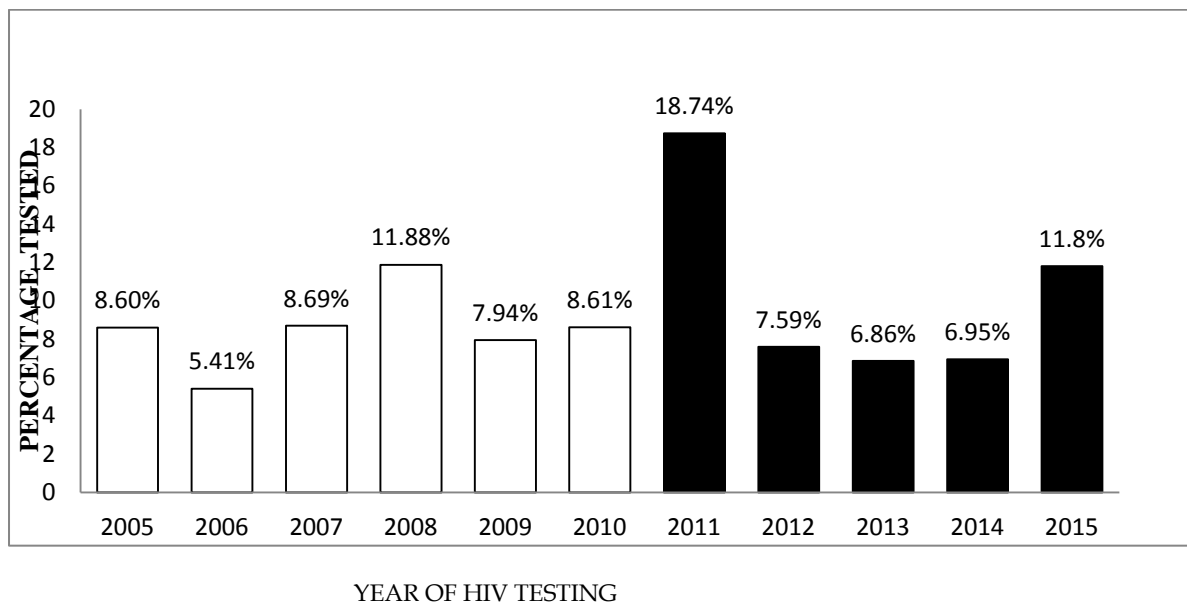
**Table 1.** Patients' Characteristics and Test Results

Characteristics	Children tested N = 7503	Negative Children n=6,635	Positive Children n =868 (11.57%)	P-value
<b>Age Category</b>				
0-18 months	820 (10.9%)	654 (9.9%)	166 (20.2%)	<0.001
19-59 months	1,812(24.2%)	1,585 (23.9%)	227 (12.5%)	
5-11 years	2,728(36.4%)	2,396 (36.1%)	332 (12.7%)	
12-18 years	2,143(28.6%)	2,000 (30.1%)	143 (6.7%)	
<b>Sex</b>				
Male	3387 (45.1%)	2,984(45%)	403 (46.4%)	0.4
Female	4116 (54.9%)	3,651(55%)	465 (53.6%)	

**Table 2.** Children Tested from 2005-2015

Year	Total children N= 76,825	Children tested n= 7,503	Sero-positive Children n= 868	P-value
2005	5989 (7.8%)	515 (8.6%)	121 (23.5%)	0.001
2006	7110 (9.3%)	385 (5.4%)	96 (25.0%)	
2007	6204 (8.1%)	539 (8.6%)	120 (22.2%)	
2008	7147 (9.3%)	849 (11.8%)	120 (14.1%)	
2009	7887 (10.3%)	627 (7.9%)	94 (15.0%)	
2010	8260 (10.8%)	711 (8.6%)	68 (9.6%)	
2011	8256 (10.7%)	1547(18.7%)	126 (14.5%)	
2012	8672 (11.3%)	658 (7.6%)	40 (6.1%)	
2013	9933 (12.9%)	681 (6.9%)	51 (7.5%)	
2014	6774 (8.8%)	471 (7.0%)	32 (6.8%)	
2015	593 (7.7%)	70 (11.8%)	0 (0%)	

Figure 1. Yearly Uptake Rate of HIV Testing By VCT and PITC



VCT=Voluntary counseling and testing

PITC=Provider initiated counseling and testing

DISCUSSION

Our study recorded an improved testing rate of 18.74% and 11.8% respectively in 2011 and 2015 (Figure 1), following PITC roll out in our hospital. Our experience showed that HIV testing improved during PITC period when compared to the VCT period. Our observation of improved testing during PITC programs is similar to the findings of Kayikamba *et al.*<sup>10</sup> PITC had a positive impact on the uptake rate of testing of our clients, comparable to the findings of Onyire *et al.* in Abakaliki, South-Eastern Nigeria.<sup>11</sup> Our finding is also comparable to other documented studies.<sup>12,13,14,15,16,17,18</sup>

But we observed that the impact of PITC over the subsequent years was not sustained as expected. This was probably due to the overwhelming burden of the workload on the health staff of the infectious unit considering the number of clients.

The testing of clients is primarily coordinated and implemented by the infectious unit with testing sites designated at different service points of other units. This may have adversely affected the outcome of testing rate considering that the infectious unit had to test the entire children who presented at the

hospital irrespective of their complaints. This may explain the sharp drop in the testing of clients recorded from 2012 to 2014, however, this improved in 2015 (Figure 1).

It was observed that a larger number of clients presented in 2012 (8672) and 2013 (9933) with 7.6% and 6.9% tested, respectively. Table 2 shows an increase in clients requiring testing under the PITC platform. This is similar to the observations of Sibanda *et al.* and Musheke *et al.* who recommended the need to expand PITC personnel and services in the face of increasing number of clients.<sup>19,20</sup>

Addressing the challenges of staff and expansion with scaling up of PITC at different service points may likely improve the testing rates of children judging from our experience. Even though most children presented in our hospital for non-HIV related illnesses, testing remains relevant in detecting undiagnosed HIV-infected children.

One of our major challenges in the study was managing the pressure from clients’ parents who saw no rationale in conducting HIV tests on their children since they had no HIV related symptoms. The expanded counseling

sessions addressed their reservations which added to the time spent in the hospital. However, the counseling sessions probably offered more information and advocacy on HIV prevention to the concerned parents. While addressing the increased number of children attending the hospital, PITC requires efficient implementation to enhance prompt testing under the provider initiated platform. Conducting faster testing and counseling of clients may have improved the uptake of our testing rates in the face of the challenges. This is similar to the observation of Njeru *et al.*<sup>21</sup>

Scaling up of PITC services may be relevant in the reduction of missed opportunities of HIV testing considering the burden of HIV epidemic. Decentralizing of PITC programs across different hospital units may be useful for an improved uptake of testing as can be seen from our experience. Unlike in our study

where PITC was coordinated by the infectious unit, PITC was enshrined as part of clinical consultations of different units in Idekpa, Benue state of Nigeria.<sup>22</sup> While similar opinion were shared by Wanyenze *et al.* and Bolu *et al.*, our study may suggest that scaling up of PITC services may be achieved by decentralization and incorporation of testing in routine clinical consultations of other units.<sup>23,24</sup>

## CONCLUSION

PITC improves the uptake of HIV testing in clients but its sustenance is crucial for prompt diagnosis. Integration of PITC into regular paediatric care and capacity building of all health care providers is vital in the control of HIV/AIDS spread. This may enhance optimal testing of children at health institutions. Adequate consolidation of provider based testing may be enhanced by counseling.

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