

## CHALLENGES WITH NON-UPTAKE OF HOME-BASED HIV SCREENING AMONG SIBLINGS OF HIV POSITIVE CHILDREN IN CALABAR, NIGERIA.

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### ABSTRACT

**Background:** Knowledge of HIV status is critical to expanding access to HIV treatment, care and support in a timely manner. Household members of HIV positive persons often are also infected but unaware of their HIV status with consequent diagnosis and treatment gaps. Targeting siblings of index HIV infected children is an important approach of improving identification and enrolment into care. Home-based HIV counselling and testing (HBHCT) has been identified as an acceptable model to complement Provider initiated counselling and testing (PITC) efforts. This study was therefore conducted to assess the uptake of HBHCT among siblings of HIV positive children in Calabar.

**Methods:** This cross-sectional descriptive study was conducted in two health facilities in Calabar. Siblings of HIV positive children were traced to their homes and HIV test was done using the home-based HIV counselling and testing model. Reasons for non-acceptance of HIV test at home were documented. Data was collected and analyzed using SPSS version 21 and p-value <0.05 was considered significant.

**Results:** Out of 401 children recruited into the study, 314(78.3%) accepted home testing while 87 (21.7%) were tested at the health facility giving an uptake of 78.3% among siblings of HIV positive children. The reasons given for non-acceptance of home-based HIV test were; fear of stigmatization 87 (100%), fear of HIV status disclosure by 54(38.3%) and previous testing for HIV 80(92%). None statistically significantly predicted uptake of home-based HIV testing.

**Conclusion** Home-based HIV testing among siblings of HIV positive children in Calabar has a high acceptability. However, fear of stigma, HIV status disclosure and previous HIV test were responsible for non-uptake.

**Keywords:** HIV, Home-based HIV testing, Sibling, Stigma, Disclosure, Non-acceptance, Uptake

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### INTRODUCTION

Nigeria has the second largest HIV epidemic in the world.<sup>1</sup> In Nigeria, only 34% of people living with HIV know their status and thus the country lags behind global efforts to reach the UNAIDS target, with 90% of people living with HIV knowing their status.<sup>2</sup> Household members of HIV positive persons often are also infected but unaware of their HIV status with consequent diagnosis and treatment gaps.<sup>3</sup> Identifying and diagnosing children as HIV infected is the first step in the continuum of paediatric care and treatment. Central to provision of treatment

and support to families affected by HIV is knowledge of the HIV status of all family members and linkage to appropriate prevention, treatment and care services.<sup>3</sup> Although the National Guidelines for Paediatric HIV treatment and care<sup>4</sup> stipulates routine testing of household members of HIV positive children; this policy still falls short of total implementation. Vertically infected infants not diagnosed in the context of PMTCT are rarely diagnosed until they are symptomatic, resulting in increased morbidity and mortality.<sup>5</sup> These infants are very unlikely to be identified and have access to treatment without targeted testing.

Early diagnosis and treatment of paediatric HIV is key, as mortality of untreated patients is very high in the first two years of life and reaches 80% by four

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years.<sup>6</sup> Coverage of HIV voluntary counselling and testing (VCT) services in both high-income and resource-constrained setting is inadequate. HIV testing of children is carried out mainly when they are ill in Paediatric clinics and nutritional support units. Despite the efficiency of PITC in finding previously undiagnosed children, mortality rates remain high among children diagnosed as inpatients and after discharge, likely reflecting late diagnosis.<sup>7,8</sup> The present strategy of waiting to test only those children presenting to health facilities often with advanced clinical disease is inadequate.<sup>7</sup> Due to the drawbacks of PITC, WHO recommends that facility-based testing be complemented with a range of community-based testing approaches like the Home based VCT.

In other to meet the global targets of HIV elimination in line with the 90-90-90 targets of UNAIDS, focused strategic testing is paramount. Targeted testing of siblings of index HIV-infected children is an important way of improving identification and enrolment into care thereby reducing Paediatric mortality.<sup>9</sup> This model can be done using the widely acceptable Home-Based HIV counseling and testing (HBHCT).<sup>10</sup> In this model, clients are tested and results disclosed to them in their homes. Targeted home based VCT of index HIV-positive clients' household members brings access to HIV testing closer to the family and it does not require clients to come forward. This approach will also benefit older children as there are few venues or opportunities for identifying them, with the majority not presenting until they are clinically ill, increasing mortality risk and compromising treatment outcomes as well as transmitting HIV.

Home-based HIV counselling and testing, compared to VCT and PITC, can identify symptomatic and asymptomatic patients

earlier in their disease course and have them enrolled into care and treatment in a timely manner.<sup>11,12</sup> However, HBHCT can be time-consuming as the provider must move from home-to-home, there are also concerns about its cost implications and acceptability due to stigma and disclosure issues which can lead to adverse social outcomes.<sup>13</sup> There is a knowledge gap about the acceptability of home based VCT for siblings of HIV positive children in care in South-south Nigeria, thus this study was carried out to determine the uptake of home-based HIV screening, and determine the reasons for non-acceptance of home-based screening and associated factors among siblings of HIV positive children in Calabar.

### **Materials and Methods**

This descriptive cross-sectional study was conducted in two principal health facilities offering PMTCT/Paediatric HIV services in Calabar, Cross- River state, Nigeria. These facilities included the University of Calabar Teaching Hospital (UCTH) and General Hospital, Calabar, Cross Rivers state, Nigeria. These facilities had been described by Ochigbo et al.<sup>14</sup> The study was conducted from August to October 2018. Consecutive patients in the clinic register aged six weeks to 15 years in care in both facilities who have siblings were used as a point of contact to reach out to their families. A "sibling" here is defined as a child from the same biological parents as the index patient.

Contact addresses and phone numbers from the unit register were used to contact the parents /guardians and the siblings of the index patients. The purpose of the study was explained to them and home visit was scheduled. Those who objected to home visit were tested in the nearest health facility and reasons for not accepting home testing were obtained. Parents/Guardians of the siblings of index patients were counseled on the purpose of the study. Parental consent

and child assent were obtained for children above 7 years. Data was obtained including the child's biodata, past medical history, parental socioeconomic status, reasons for not accepting home testing. General physical examination was conducted at either the home of the parents or at the health facility based on the parents' preference.

During home visits, HIV rapid tests were done with immediate disclosure of results, post-test counselling and referral for HIV care for those who tested positive. HIV tests were done using the serial algorithm, Determine™ HIV 1/2 (ABBOT Medical Japan) was used as the screening tests while Uni-Gold™ (Trinity Biotech Ireland) and STAT-PAK™ (CHEMBIO Diagnostic systems) were used as confirmatory test and tie-breaker respectively. Dry blood spot for DNA Polymerase chain reaction was used to confirm the status of siblings less than 18 months of age after a positive rapid test. Acceptance of home-based testing (or uptake) was defined as the proportion of all individuals offered HBHCT who accepted and had an HIV test performed at home.<sup>12</sup> Ethical Clearance Certificates for the study were obtained from the Health Research Ethics Committee of the University of Calabar Teaching Hospital and the Ministry of health, Cross-Rivers state in charge of the General Hospital. The data were analyzed using Statistical Package for Social Sciences (SPSS) version 21. Descriptive statistics was presented with frequencies and proportions. Categorical variables were compared using chi-square test and Fisher's exact test. The level of statistical significance was fixed at p-value < 0.05. Main effects with p-values <0.25 were entered in a comprehensive multivariable model for both outcomes to determine predictors of outcome using logistic regression.

## Results

Four hundred and one (401) children were recruited into the study, 192(47.9%) males and 209(52.1%) females with M:F ratio 1:1.1. The overall mean age was 7.53 ± 4.12 years with those aged 5 years and below had the highest frequency.

Out of the 401 children studied, 314 accepted home testing giving an uptake of 78.3% among siblings of HIV positive children. However, 87(21.7%) declined home testing. The reasons given for non-acceptance of home-based HIV test include: fear of disclosure 54(38.3%), fear of stigmatization 87(100%), refused due to prior test 80(92%). (Table 1)

Table 1: Home-based testing of HIV among study participants

Variable	Frequency	Percentage (%)
Accepts home testing?		
Yes	314	78.3
No	87	21.7
<b>Total</b>	<b>401</b>	<b>100.0</b>
<b>Reasons for not accepting</b>		
Fear of disclosure	54	62.1
Fear of stigmatization	87	100
Previous HIV testing	80	92

Four (1%) children tested positive for HIV. Three (3) of these newly identified HIV cases were asymptomatic while one was symptomatic.

The relationship between acceptance of home-based testing and maternal marital status was statistically significant (p =0.007). The relationship between acceptance of home-based testing and the other variables such as maternal education, parental HIV status, Orphan hood status,

previous HIV screening, Socio-economic class were not statistically significant

despite their high percentages (Table II)

**Table II Relationship between acceptance of Home -based HIV Screening and Socio - demographics and other variables**

Acceptance of Home HIV Screening					
Variable	Yes	No	Total (%)	Chi Square	p -value
<b>Maternal education</b>					
Primary	65(16.2)	19(4.7)	84(20.9)		
Secondary	162(40.4)	34(8.5)	196(48.9)	Fischer exact	0.112
Tertiary	78(19.5)	29(7.3)	107(26.8)	5.891	
None	9(2.2)	5(1.2)	14(3.4)		
<b>Maternal marital status</b>					
Single	1(0.2)	3(0.7)	4(0.9)	Fischer exact	0.007
Married	278(69.3)	73(18.2)	351(87.5)	10.9	
Widowed	35(8.7)	9(2.2)	44(10.9)		
Divorced	0(0)	2(0.5)	2(0.5)		
<b>Maternal HIV Status</b>					
Negative	10(3.0)	0(0)	10(2.5)	5.637	0.48
Positive	268(68.8)	83(20.7)	351(87.5)		
Unknown	35(8.8)	5(1.2)	40(10.0)		
<b>Orphaned</b>					
No	254(63.3)	75(18.7)	329(82.0)		
Single orphan	43(10.7)	11(2.8)	54(13.5)	2.929	0.249
Double Orphan	17(4.3)	1(0.2)	18(4.5)		
<b>Previous HIV screening</b>					
Yes	287(71.6)	80(19.9)	367(91.5)	0.07	1.00

Potential determinants of outcome were examined using binary logistics regression. However, none of the investigated factors

was significantly associated with uptake of home-based HIV testing. (Table III)

**Table III. Predictors of acceptance of home -based HIV testing among siblings of HIV positive children**

Variable	p-value	Odds ratio	95% CI
Marital status of mother	0.99	0.00	.. . . .
Orphan status	1.00	0.040	0.00 -1.35
Previous HIV testing	0.99	0.00	0.00-1.35

### Discussion

Acceptance of home-based HTC among siblings of HIV positive children in Calabar was 78.3%.

The high acceptance of home-based HTC among siblings of HIV positive children in Calabar is consistent with other studies.<sup>12,15,16</sup> A systematic review of 21 studies conducted in Kenya, Malawi, South Africa, Uganda and Zambia found that home-based HIV testing and counselling was highly acceptable, with an average 83% of people accepting HIV test.<sup>12</sup> Similarly, Sharma et al<sup>16</sup> reported an average uptake of 82% in a systematic review and meta-analysis of uptake of homebased testing in 31 studies done in sub-Saharan Africa. Home-based VCT was predictably preferred because it requires virtually no travel time and effort to obtain results. In addition, homes were perceived as places where participants could receive their test results confidentially more than in health facilities.<sup>17</sup> Homes are perceived as places where participants could receive their test results confidentially

more than in health facilities.<sup>18</sup>

In contrast, Vreeman et al<sup>19</sup> found an uptake of 56.5% in a retrospective study on acceptance of home- based HTC among Children 18 months to 13 years in Kenya. In this study by Vreeman et al<sup>19</sup> children were offered HCT if their mother was known to be dead, her living status was unknown, mother was HIV-infected or of unknown HIV status, this bias could have affected the uptake. In our study, index patients in care were used to track their siblings.

Uptake was highest among the younger age group in this study. This was similar to the findings of other researchers.<sup>15,20</sup> This could be attributed to lower risk perception in the older age group compared to the younger ones. In addition, the fear of disclosure of the parent's HIV status to the older siblings who are more likely to ask questions concerning the test.

In this study, the proportion of previously undiagnosed HIV infection was 1%, this

small number reflects the efficacy of efforts directed towards HIV testing and increased awareness among families with an HIV positive child in our locality. This result is a sharp contrast to findings in other high burden localities.

The newly diagnosed HIV cases were mostly asymptomatic. This strengthens the fact that home-based HIV testing identifies asymptomatic cases and ensures timely introduction of ART in this era of “test and treat” policy to ensure a better outcome. This finding is in consonance with other studies<sup>21,22</sup> that reported asymptomatic clinical status of patients diagnosed HIV-positive upon HBHCT. Home-based HIV testing, compared to VCT and PITC, can identify symptomatic and asymptomatic patients earlier in their disease course and have them enrolled into care and treatment in a timely manner.<sup>12,23</sup> It has been established that non-utilization of HIV testing services is less with children who do not fall sick often.<sup>14,24</sup>

Fear of stigma, HIV status disclosure and prior HIV testing were the reasons why caregivers/parents declined home-based HIV testing for the siblings of HIV positive children in care in Calabar. This highlights the impact of stigmatization on important decisions of HIV testing despite available laws against AIDS/HIV stigmatization in Nigeria.

Our findings of fear of stigma were similar to the reports of studies in South Africa<sup>25</sup>, Ethiopia<sup>26</sup> and Zimbabwe.<sup>27</sup> In these studies,<sup>25-27</sup> the respondents mentioned fear of stigmatization and discrimination of their children as one of the most important deterrents to HIV testing. Stigmatizing beliefs about AIDS and their associated fears of discrimination can influence decisions to seek HIV testing and HIV treatment services and remains a

formidable challenge, hindering access to accurate information and services.<sup>25</sup>

The findings on disclosure of HIV status in our study was corroborated by other studies<sup>28,29</sup> that showed that fear and shame of disclosing a child's status to the child, and subsequently being compelled to discuss related subjects hinder HIV testing for children whose parents were aware of their own HIV positive status. In some instances, there is the fear of disclosure of status to their spouses and children with attendant discrimination, rejection, gender-based violence or even divorce. An HIV diagnosis like any other STI diagnosis will likely raise the tangible question of who brought the infection to the family. Additionally, cultural connotation of death assigned to HIV and assumption in the adult population in our locality that being diagnosed with HIV means that the individual has been living in marital infidelity or promiscuity is central to HIV stigmatization.

In this study, having had a previous test was another reason for declining test at home; this is corroborated by the study by Ruzagira et al<sup>15</sup> where 15.8% of respondents who decline home-based test cited this as a reason. Similarly, in a study by Vreeman et al<sup>19</sup> those who had previously been tested were less likely to accept a repeat test at home.

Of all the demographic factors that were studied, only maternal marital status was statistically associated with acceptance of home-based HIV testing. Mothers who are married were more likely to accept testing at home than single mothers or those that are divorced. This may be due to higher chances of stigmatization of a single mother in her neighbourhood. In addition, HIV status of a woman could lead to divorce as an adverse home reaction leading to self-stigmatization

and once the divorcee is outside her matrimonial home, willingness to allow home visit declines because of the need to avoid any suspicion of HIV status as reason for a health visit.

Surprisingly, some of the demographic factors commonly reported to be predictors of HIV testing uptake were not significant in our study. The small sample size in this study may have limited the power to detect association between potential risk factors and outcomes.

**Conclusion:** Acceptance of home-based HIV testing among siblings of HIV positive children in Calabar was 78.3%. This shows high acceptability of the HBT model. Fear of stigma and fear of HIV status disclosure and previous testing for HIV were the reasons why caregivers/parents declined home-based HIV testing for the siblings of HIV positive children in care in Calabar.

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**Funding:** None

#### Authors' contributions

Torty and Ochigbo conceived and designed the study, were responsible for study coordination and data management. Torty analyzed the data, interpreted findings and wrote the manuscript. Uzomba, Eyong and Nwankwo critically reviewed the manuscript for important intellectual content.

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