

## HIV SEROPREVALENCE RATES AMONG PROSPECTIVE SERVICE PERSONNEL IN A NIGERIAN SECURITY FACILITY

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**BACKGROUND:** There is no doubt that the greatest health problem threatening the human race in these times is the HIV/AIDS pandemic. The greatest burden of this scourge is in sub-Saharan Africa. According to the joint United Nations Committee on HIV/AIDS (UNAIDS), over 40 million people have been infected with the disease as of the end of 2001 and of which over 28 million are in sub-Saharan Africa. These are the group presenting themselves for paramilitary recruitment in Nigeria.

**OBJECTIVES:** The aim of this retrospective study is firstly to analyse the results of the HIV antibodies screening and confirmatory tests in order to determine the seroprevalence rate of HIV infection among this prospective service personnel. Secondly, to compare the prevalence rates between the males and females. Finally, to compare the seroprevalence rate in 2003 with that of 2002 among similar group.

**METHODOLOGY:** A total of 900 consecutive prospective recruits were screened for HIV antibodies using double technique. Confirmatory tests were then performed on positive sera using Immunoconfirmatory kits. Chi square was used to analyse the results.

Of the 900 tested, 817 are males while 83 are females

**RESULTS:** The prevalence is 1.4%. Overall in 2002, out of 431 officers screened in both groups, 8 (1.86%) were positive for HIV antibodies comprising 5 men (1.16%) and 3 women (0.69%). In 2003, Out of a total of 900 recruits tested for HIV seropositivity, 13 (1.4%) were found to be seropositive with a 95% confidence interval of 1.0% to 1.8%.

**DISCUSSION AND CONCLUSION:** Our results show a seroprevalence of 1.44% among members of this security outfit and it is quite low compared to the national average of 5%. Our findings are low compared to seroprevalence rates among ANC clients, Tb patients, STD clients and blood donors<sup>5</sup>. However, it is comparable to 1.7% among another group of paramilitary in 2002, 1.4% among people with leprosy and 1.8% in Jigawa State sentinel survey. Health education is advised.

## INTRODUCTION

There is no doubt that the greatest health problem threatening the human race in these times is the HIV/AIDS pandemic. The greatest burden of this scourge is in sub-Saharan Africa. According to the joint United Nations Committee on HIV/AIDS (UNAIDS), over 40 million people have been infected with the disease as of the end of 2001 and of which over 28 million are in sub-Saharan Africa (1,2,3). Although the first case of AIDS in Nigeria was in 1986, the epidemic has now reached an alarming proportion. The national median prevalence of HIV infection in the general population in Nigeria from the sentinel surveys was found to be 5% in 2003 up from 1.8% in 1991. HIV infection has spread slowly in Nigeria than in many other African countries. For example, in several South African and East African countries, HIV prevalence among 15 to 49 years old is now estimated at 15-30%. No one is quite sure why the epidemic has spread more slowly in Nigeria and in some other West African countries. However, Nigeria's HIV prevalence rate is one of the highest in West Africa, second only to Cote d'Ivoire (9.7%) (1). Due to its large population size, Nigeria now has the fourth highest number of HIV infected people in the world, behind South Africa, India and Ethiopia<sup>1,2,3</sup>. Evidence from sentinel surveillance suggests that HIV prevalence is still on the rise in Nigeria. Analysis based on the ANC HIV seroprevalence surveys show that the prevalence in the 15-49 year age group in Nigeria is still rising, going from 1.8% in 1991 to 3.8% in 1994 to 5.8% in 2001. Experience in other parts of Africa suggests that HIV prevalence in Nigeria could rise higher than at present (1). The impact of this on the nation will be immense viz increase in new AIDS cases yearly, AIDS deaths among 15-49 years of age, cumulative AIDS deaths, AIDS orphans, number of persons with

tuberculosis etc and decrease in the work force, life expectancy and of general population (1).

The largest numbers of HIV infected individuals are heterosexual young men and women living in sub-Saharan Africa including Burkina Faso, Cote d'Ivoire, Ghana and Nigeria. This group accounts for about 60% of the world total HIV infected persons and almost 90% of the current 28 million HIV infections in adults and adolescents in Africa (2). WHO (4) reported that the rates of newly acquired HIV infections are highest in the 15-40 year old groups among both females and males in most sub-Saharan Africa. These are the productive age groups that are presenting themselves for recruitment into the various security agencies in Nigeria. Within the military, police, and other uniformed services, which occupy critical positions within Nigerian society, AIDS control units exist but these are under funded and not as effective as they could be. The police are actually a larger uniformed service than the military and share many of the same risk factors. However, the police response to the epidemic needs bolstering (1). As with most employers of labour in Nigeria, a medical certificate of fitness is now required from a government hospital. This paramilitary outfit is no exception. During the 2002/2003 recruitment exercises, those intending candidates were counselled and offered voluntary testing for HIV among other laboratory tests. The aim of this retrospective study is firstly to analyse the results of the HIV antibodies screening and confirmatory tests in order to determine the seroprevalence rate of HIV infection among this prospective service personnel. Secondly, to compare the prevalence rates between the males and females. Finally, to compare the seroprevalence rate in 2003 with that of 2002 among similar group.

## **MEN, MATERIALS AND METHODS**

A total of 900 consecutive prospective recruits were screened for HIV infection at Kano Teaching Hospital between December 2002 and January 2003. Of these officers who are apparently healthy, eight hundred and seventeen (817) were males and eighty three (83) were females. Following counselling, standard aseptic procedures were used in sample collection and processing. Only 4-5ml of venous blood was obtained. Using Capillus, a rapid agglutination test and method, Biotech Ireland (5), all serum samples were screened for HIV antibodies. Every positive serum sample with the first kit was subjected to Immunocomb HIV 1 and 2 Bispot. Another different method and kit (Immuno-comb organics Israel) (6). Immuno confirmatory kit (HIV 1 & 2 Immunoconfirm II) (7) was then employed for greater assurance. The result was subjected to statistical analysis and was later released afterwards with strict confidentiality and necessary counselling.

## **RESULTS**

The ages of the recruits ranged from 21 to 39 years with a mean age of  $28 \pm 2.3$  years. Out of a total of 900 recruits tested for HIV seropositivity, 13 (1.4%) were found to be seropositive with a 95% confidence interval of 1.0% to 1.8%. When considered separately of the 817 male recruits, 7(0.9%) were HIV seropositive compared to 6(5.6%) of the 83 females. This difference was

statistically significant ( $X^2=14.8$  at  $P<0.001$ ) as shown in table I.

Similarly when divided into age groups, there was an increasing trend in seropositivity among all recruits from 1.1% in the youngest age group (20-24 years), through 1.6% in (25-29) years age group, to 1.9% among those within the 30-34years age bracket. However, none of the older recruits (35-39 years) was seropositive, this increasing trend was not statistically significant ( $X^2$  trend = 0.08 at 3df and  $P=0.77$ ). Table II.

Overall in 2002, out of 431 officers screened in both groups, 8 (1.86%) were positive for HIV antibodies comprising 5 men (1.16%) and 3 women (0.69%). In 2003, Out of a total of 900 recruits tested for HIV seropositivity, 13 (1.4%) were found to be seropositive with a 95% confidence interval of 1.0% to 1.8%. When considered separately of the 817 male recruits, 7(0.9%) were HIV seropositive compared to 6(5.6%) of the 83 females.

## **DISCUSSION**

Our results show a seroprevalence of 1.44% among members of this security outfit and it is quite low compared to the national average of 5%. Our findings are low compared to seroprevalence rates among ANC

**TABLE 1 DISTRIBUTION OF HIV SEROPOSITIVITY BY GENDER IN PARAMILITARY RECRUITS**

<b>Gender</b>	<b>No. positive (%)</b>	<b>No. negative (%)</b>	<b>Total</b>
Male	7 (0.9)	810 (99.1)	817 (100.0)
Female	6 (7.2)	77 (92.8)	83 (100.0)
<b>Total</b>	<b>13 (1.4)</b>	<b>887 (98.6)</b>	<b>900 (100.0)</b>

$X^2 = 14.8$  at 2dF and  $P < 0.001$

**TABLE II DISTRIBUTION OF SEROPOSITIVITY BY AGE AMONG PARAMILITARY RECRUITS**

<b>Age Group</b>	<b>Seropositive</b>	<b>Seronegative</b>	<b>Total</b>
	No. (%)	No. (%)	
20 – 24	3 (1.1)	279 (98.9)	282
25 – 29	6 (1.6)	362 (98.4)	368
30 – 34	4 (1.9)	206 (98.1)	210
35 – 39	-	40 (100.0)	40
<b>Total</b>	<b>13 (1.4)</b>	<b>887 (98.6)</b>	<b>900 (100.0)</b>

$X^2$  trend = 0.08 at 3dF and  $P = 0.77$ . Not significant.

However, it is comparable to rates among other recruits in 2002 (1.7%) (4) and leprosy patients (9). Moreover considering that about half of those positive (5.6%) are women, there is need to be concerned. This difference between females and males is statistically significant ( $X^2=14.8$ ). Projecting this into the future with the HIV infection long incubation period (5-15years) and adventurism among this sexually active group, the thirteen recruits today may translate into tens of Nigerians that may live with HIV/AIDS. There is therefore the need to educate the members of all paramilitary groups on the ABC's of STD control and behavioural change in order to avert any disease spread in the population. There is need to incorporate health education among this group since there is no cure for now and the treatment is life-long, expensive and out of reach of most Nigerians. In our preliminary report last year, the prevalence rate was 1.7% among 400 paramilitary group while it is 1.4% a year later among 900 members. The difference is not statistically significant ( $X^2$  at Pvalue 0.05 and IdF = 0.36). Based on our findings above, we are tempted to conclude that the prevalence of HIV infection among some security groups in Nigeria is quite low 1.56%. The national average is 5.8%. HIV infection rate among female members is generally higher than their male counter part.

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