

# Seroprevalence Of Human Immunodeficiency Virus Among Patients Attending Federal Dental Clinic, Enugu, Nigeria

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## Citation

E Amadi, C Ononiwu, N Aballa, S Oladimeji, F Aneke, C Aneke, O Azeez. *Seroprevalence Of Human Immunodeficiency Virus Among Patients Attending Federal Dental Clinic, Enugu, Nigeria*. The Internet Journal of Dental Science. 2008 Volume 7 Number 2.

## Abstract

The seroprevalence of human immunodeficiency virus (HIV) among patients attending the dental clinic of the Federal School of Dental Technology and Therapy, Enugu, was determined. Venous blood samples collected from 100 patients (46 females, 54 males) were screened for HIV using the HIV ½ rapid test strip (ACON, USA) and the Determined HIV ½ (Abbott, Japan). Structured questionnaires were also administered to Dental Surgeons and Dental Surgery Assistants to ascertain their infection control knowledge and practice. Out of the 100 patients screened, 4% tested positive, with males constituting over 70% of the overall prevalence. Also, patients within the age range 21-30 years accounted for the highest prevalence. The infection control knowledge/practice of the Dental Professionals was dismally low. This study underscores the urgent need for strict observance of the universal precautionary measures while handling patients of unknown HIV status. The need for routine infection control training for Dental Professionals is hereby emphasized.

## INTRODUCTION

First described in 1981, the acquired immunodeficiency syndrome (AIDS) is the result of an infection by the human immunodeficiency virus (HIV), a positive stranded, enveloped RNA virus within the family Retroviridae (1). Ever since, it has become a worldwide epidemic, expanding in scope and magnitude and have affected different populations and geographical regions (2). Although sexual contact is the major route of transmission of HIV, it also spreads via mother to child, blood transfusion of infected blood and blood products, use of infected syringes and needles (1, 3, 4).

HIV poses a great challenge to health care workers, especially those with high probability of contact with patient's blood or body fluids (2, 5). This is particularly vital in the developing nations where pre- HIV screening is not often required for routine medical checks, including dental examination and extraction. Although medical and dental professionals are not considered high risk group, several hundreds are known to have acquired HIV through clinical accidents such as needle stick injuries (4). The present study aimed at determining the seroprevalence of HIV among patients attending the dental clinic of the Federal School of Dental Technology and Therapy, Enugu, Enugu State, Nigeria.

## MATERIAL AND METHODS

### SAMPLE POPULATION

One hundred patients (46 females, 54 males) were randomly selected among the patients attending the dental clinic of the Federal School of Dental Technology and Therapy, Enugu, between July-October, 2008.

### SAMPLE COLLECTED AND HIV SCREENING

Venous blood samples were collected from the patients using 5ml sterile syringes and introduced into sterile sample bottles containing ethylene diamine tetra acetic acid (EDTA). Methylated spirit was used to disinfect the patient's skin before collection. After spinning in centrifuge at 2000rpm for 2 minutes, the plasma were carefully separated. The HIV screening was done with HIV ½ rapid test strip (ACON, USA) and Determine HIV ½ (Abbott, Japan). The procedures were conducted in line with the manufacturer's instructions. Any positive result with the first test was confirmed with the Determine HIV ½ test. Only samples that gave positive results upon screening with the Determine HIV ½ test were regarded as positive.

### DETERMINATION OF INFECTION CONTROL KNOWLEDGE AND PRACTICE

Structured questionnaires on infection control knowledge

and practice were administered to three dental surgeons and six Dental Surgery Assistants (DSAs) at the Federal dental clinic, Enugu.

## **INTERPRETATION OF RESULTS**

The tests were interpreted to be positive when two red bars clearly appeared in both the control and the patient's window of the strip. On the other hand, the appearance of only one red bar in the control window strip and none in the patients bar was read as negative test.

## **ETHICAL CONSIDERATION**

Approval for the study was obtained from the Research ethics committee of the Federal School of Dental Technology and Therapy, Enugu. The patient's consent were obtained and the test results were not linked to the participants.

## **RESULTS AND DISCUSSION**

The result of the present study showed that out of the 100 patients screened, 4% were positive to HIV (Table 1). This is quite high compared with 2.3% prevalence recorded among oral surgery patients at the University College Hospital, Ibadan, Nigeria (6) and 1.1% reported among maxillofacial and oral surgery patients at Medunsa (7). It is however lower than the report by Esan et al., (8) in which 5.77% prevalence was recorded among emergency department patients at the Lagos University Teaching Hospital, Lagos, Nigeria. Also, Itula et al., (9) recorded a prevalence of 7% among Namibian dental patients. It is quite obvious, that the HIV seroprevalence rate, among the dental patients in our study area, was relatively high. This certainly calls for serious attention by the dental professionals. This is particularly important because the result of the infection control knowledge and practice study revealed that patients admitted into our target dental clinic are not requested to undergo HIV screening before treatment.

Although the infection control and practice study showed that the dental professionals were always provided with protective gadgets such as gloves, face mask and goggles by the institution, over 50% of the Surgeons admitted to have treated patients at one time or the other without wearing the protective apparels. This is indeed worrisome and calls for a change of attitude of dental professionals in Nigeria while handling patients of unknown HIV status.

The result of the present study also indicated that females were infected more than the males. This is contrary to the

reports of Arotiba et al., (6) and Itula et al., (9) in which males respectively accounted for higher prevalence. Esan et al., (8) however in their work, reported no significant difference in the overall HIV prevalence with respect to the sex of the patients. The exact reason for the higher prevalence among the females in this study is not presently obvious.

It was also observed that the patients that screened HIV positive in this study belonged to the 21-30 age group. This is in agreement with the report of Arotiba et al., (6) and Esan et al., (8). The reason is undoubtedly to the fact that this age range is the sexually active group with high tendency of maintaining multiple sexual partners.

It is important to note that the infection control study further showed that while none of the Dental Surgeons admitted needle stick injury experience in the course of their work, over 60% of the DSAs stated that they had at some time in their work experienced needle pricks. This is disturbing because such pricks could emanate from needles used on HIV infected patients. The figure of needle prick experience among the DSAs as recorded in this study is high compared with the 40% suggested by Adegboye et al., (10) for the dental therapist/Assistants. Unexpected patients movement, needle recapping, accidental prick by colleagues and syringe/needle dismantling has been reported as the major causes of needle stick injuries in dental practice. Ironically, the DSAs didn't know exactly what to do after such stick injuries. The reason for this was not far fetched, since the infection control study also showed that none of the dental surgeons and less than 40% of the DSAs had attended infection control in-service training. This finding thus stressed further the urgent necessity for routine infection control training for dental professionals.

It is therefore essential now more than ever, to expose the dental professionals to the current infection control techniques especially in areas where HIV screening before treatment is not practiced. This will ensure the safety of both the dental professionals and their patients alike.

**Figure 1**

Table 1: The seroprevalence of HIV with respect to sex, age and marital status

HIV status	Male	Female	11-20	21-30	31-40	41>	M	S	Total
+ve	1	3	0	4	0	0	2	2	4
-ve	53	43	6	38	17	35	46	50	96
Total	54	46	6	42	17	35	48	52	100

Key: +ve HIV positive  
 -ve HIV negative  
 M married  
 S single

**Figure 2**

Table 2: Infection control knowledge and work experiences of dental professionals

Item(s)	Surgeons(%)	DSAs(%)
Previous attendance to infection control training	0	33.3
Needle stick injury experience	0	66.7
Knowledge of proper action to take post prick	0	0
Frequent hand washing	66.7	33.3
Handling of patients without protective apparel	66.7	-
Previous screening for HIV	33.3	0
Willingness to be screened for HIV	33.3	16.7

Key: DSAs Dental Surgery Assistants  
 HIV Human Immunodeficiency Virus  
 - Not applicable

**ACKNOWLEDGEMENTS**

The Authors appreciate the assistance and support of the Management of the Federal School of Dental Technology and Therapy (FSDT&T), Enugu, Nigeria which enabled the accomplishment of this study. The contributions of Onyechere Ugochukwunyerem, D and Obiajulu Judith, I, are also acknowledged. Mrs Eze, C and other laboratory Staff of Applied Science Department of FSDT&T, Enugu are also appreciated.

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