



**PREVALENCE OF CLINICAL RABIES CASES IN HUMANS IN UMUAHIA LOCAL  
GOVERNMENT AREA OF ABIA STATE NIGERIA**

<sup>1\*</sup>Nwoha R. I. O. and <sup>2</sup>Ugwuoke F.N

<sup>1</sup>Department of Veterinary Medicine.

<sup>1,2</sup>Michael Okpara University of Agriculture Umudike.

\*Correspondence for Author: Dr. Nwoha R. I. O  
Michael Okpara University of Agriculture Umudike.

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**ABSTRACT**

The dangers of rabies in humans and animals prompted the conduction of a 5 year retrospective studies (2009-2013) of clinical rabies cases in Umuahia of Abia State, Nigeria. The study was done randomly with questionnaires and data collated from 10 hospitals and some selected clans in Ikwuano Local Government Area of Abia State. The questionnaire was designed to obtain data on out patient clinical rabies cases and their sex distribution in humans. The study recorded zero (0) prevalence rate within the period of 2009 to 2013 in Umuahia of Abia State Nigeria. The result recorded among several reasons was due to increased awareness of residents to vaccination program of dogs against infectious diseases including rabies. The respondents have no knowledge of any rabies patient within their environment. In addition, there was a progressive increase in patients' hospital visitation within the period of 2009 to 2013 confirming public awareness of rabies and need for hospital consultation in health challenges. In conclusion, the zero prevalence in clinical rabies may indicate an increase in public awareness to dangers associated with rabies and need for prioritizing vaccination program of their household dogs.

**KEYWORDS:** clinical. rabies. dogs. Umuahia.

**INTRODUCTION**

Rabies is an acute viral infection of the central nervous system, characterized by irritation of the central nervous system, paralysis and death (Harper, 2004). Rabies is caused by a virus of the genus lyssavirus in the family of Rhabdoviridae (Rupprecht *et al.*, 2002). The first scientific report of rabies in man was in 1912, and in 1925 in dogs (Boulger and Hardy, 1960). Since then rabies has been recognized as a major health problem to mammals. According to a study conducted in 2002 in the United States of America, about 55,000 deaths were recorded following clinical rabies in the world and the cost implication was estimated to be > 300 million dollars (CDC, 2014). In the year 2010, the number of deaths in African countries such as Nigeria, Togo, Benin Republic and Ghana which were endemic with rabies was recorded at 23,800 and by 2013, the number declined to 23,700 (Knobel *et al.*, 2005). Decades ago Aghomo *et al.* (1987) recorded 15.93% rabies cases in unvaccinated dogs in South Western part of Nigeria. Similar study in Bauchi State, Nigeria recorded 5.4% rabies cases in humans and up to 93.6% cases in dogs (Bello *et al.*, 2007). Meshelbwala *et al.* (2013) recorded 5% prevalence of rabies in the saliva of apparently health dogs in Abia State. In the same study 72.7% of those exposed to dog bite patronize traditionalist for treatment whereas 27.8% goes to hospital. Furthermore a rabid case was recorded in a tertiary health institution in south eastern Nigeria (Nwokeukwu *et al.*, 2015). Research

findings on the trend of rabies cases recorded between 1983-1991 show a 40% to 60% increase in rabies cases for every decade in Nigeria (Ogunkoya *et al.*, 2014). Although, rabies can infect and be maintained in several different host species, mongoose (11%), jackals (9%), squirrels (8.3%), hydrax (17%) and wild cats (16%); domestic dogs (28%) are by far the most important source of infection to humans (Clifton, 2011; Ogunkoya *et al.*, 2014). Rabies virus is still affecting humans in Nigeria due to negligence in anti-rabies vaccination campaigns allowing maintenance of the disease in dogs as the main reservoir of the virus (Adeiga *et al.*, 1998; Warrel and Warrel, 2004). However terrestrial rabies has been eradicated in some countries, such as Britain, Japan, and Island nations like Taiwan, Hong Kong, Malaysia and Singapore (Hiko *et al.*, 2007). In most African countries especially in the Western and Central Africa, there is absence of policy on notification of rabies cases in humans and animals (Dobet *et al.*, 2008). And this has resulted in absence of emergency preparedness programs and stringent anti rabies vaccination campaigns control measures. The present situations are tackled by mounting frequent surveillance programs, hence the need for retrospective study of the prevalence of clinical rabies cases in humans in Umuahia Local Government Area of Abia State.

**MATERIALS AND METHODS**

Study place

Map of Umuahia



Fig 1a. Umuahia North

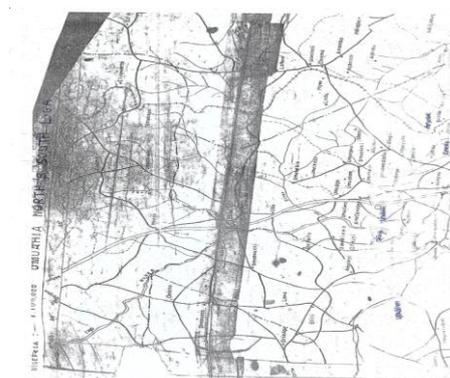


Fig 1b. Umuahia South

Abia state is one of the states within the Southeastern region of Nigeria. The state consists of seventeen local Government Areas with Umuahia as the state capital. It lies within approximately latitudes 4° 40' and 6° 4' and longitudes 7° 10' and 8° east. It covers an area of about 5243.7sq.km which is approximately 5.8 percent of the total land area of Nigeria. Umuahia city is a small urban area less densely populated with people from different works of life which are mostly government workers. Umuahia as a city is comprised of two main Local Governments, Umuahia North and South Local Governments. The size of the town caused migration of most urban dwellers to the surrounding communities in search of accommodation. This development results in cohabitation of city people with rural dwellers giving the city a typical urban-rural dwelling setting. Most dwellers keep dogs for several reasons including for security and breeding purposes. Due to the existing setting in the city, there is often straying of dogs from the rural areas into the city and vice versa.

**Experimental design**

A 5 year retrospective study of clinical rabies cases in humans was surveyed in 10 hospitals both Government and Private owned in Umuahia of Abia State from 2009-2013. The survey collated records of existing clinical rabies cases from 2009-2013 in each of the hospitals. In addition questionnaires were distributed to both hospital staff and patients to obtain information on out-patient rabies cases and filled forms collated same day for analysis. The collation was done twice weekly for 8 months.

**Ethical Approval**

Ethical approval was obtained from Health Research Ethics Committee. Informed consent was obtained from the respondents after been made to understand that participation is voluntary and there is no consequence whatsoever for non-participation or withdrawal at any stage of the study.

**Statistical analysis**

The result obtained was analyzed with descriptive statistics using SPSS version 16.0. The incidence rate per year was determined using the formula  $P=d/n$ . Where d = the positive cases and n= total number of samples examined (Thrusfield, 2005). The result was presented in percentage and shown on a histogram.

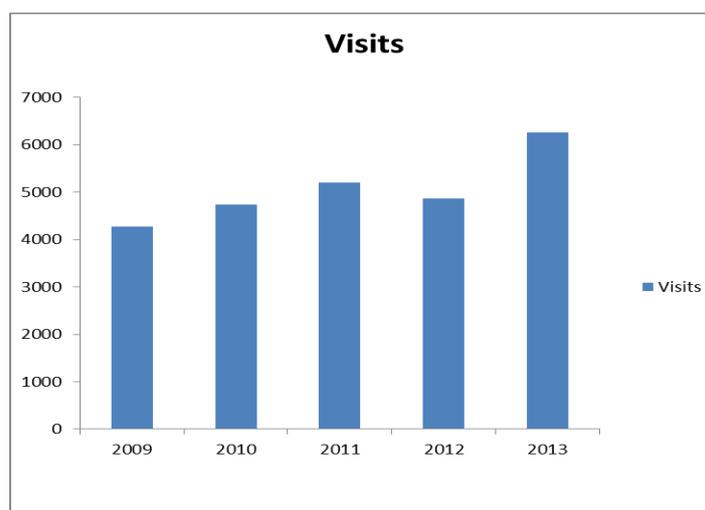
**RESULTS**

In Table 1, Out of a total of 27159 patients that visited the hospital from 2009 to 2013, none was admitted for clinical rabies. Similarly out of 100 questionnaires administered to both hospital staff and indigenes of Ikwuano Local Government Area of Abia State, none was in affirmation of clinical rabies. Hence zero (0%) prevalence of clinical rabies was recorded in humans in Umuahia city of Abia State.

Fig.1 represents histogram of hospital visitation of patients within Umuahia of Abia state from 2009-2013. The rate of patients' hospital visits gradually increased from 2009 up to 2011 and slightly decreased in 2012 and went high in 2013.

**Table 1. Prevalence of clinical rabies cases presented to the hospital from 2009 to 2013 in Umuahia City of Abia State.**

Year	Number of patients with other ailment	Number of clinical rabies	Total number of patients per year	Percentage (%) of clinical rabies cases per year
2009	3900	0	3900	0
2010	5259	0	5259	0
2011	5650	0	5650	0
2012	5526	0	5526	0
2013	6824	0	6824	0
Total	27159	0	27159	0%



**Fig.1. prevalence of hospital visitation of patients recorded from 10 hospitals located within Umuahia of Abia State**

## DISCUSSION

The zero prevalence of human rabies recorded in a 5 year retrospective study could be interpreted in several ways. First it was in contrast with the work of Nwokeukwu *et al.* (2015) who recorded a single case of clinical rabies within the same period of our study. Records made available to the authors during our numerous visits to the Public Health sector of Federal Medical Center, Umuahia had zero record of clinical rabies case. The authors therefore attribute the confounding factor in our studies to undue restriction by the Health institution to available information on clinical rabies cases. Our result could also mean an appreciable awareness of rabies, its primary modes and means of transmission and preventive measures within Umuahia of Abia state. Even the single clinical rabies case recorded by Nwokeukwu *et al.* (2015) was far better than what was obtained in other parts of the country such as Bauchi State thus buttressing the increased public awareness of rabies by the populace within the city. This development may have emerged from recent annual anti rabies vaccination of dog's campaign program mounted by the College of Veterinary Medicine, Michael Okpara University of Agriculture, Umudike, Abia State. The program was further extended by massive antirabies vaccination of dogs in commemoration of Worlds rabies day organized by the College in collaboration with the State Ministry of Agriculture and other stake holders in dog business. During such programs the general publics were sensitized on the dangers of rabies in dogs and man and are urged to present their dogs for free vaccination. The program also involves an outreach to various communities for door to door vaccination of dogs in the rural areas. Through such programs significant proportion of dogs' population are covered and protected from rabies. Integration and sustenance of such programs in the city affairs would drastically reduce incidence rate of rabies in dogs and human exposure to the disease. On the other hand, the zero incidence rates could also result from non presentation of clinical rabies cases to the hospitals. Rabies is often seen in people from remote

parts of the country where there are abundance of stray and unvaccinated dogs. Most of these people prefer traditional means of treatment of clinical rabies and would patronize traditionalist thereby affecting the true prevalence of the disease within a place. This corroborates the work of Meshelbwala *et al.* (2013; Ogunkoya *et al.* 2014). Sometimes relatives of clinical rabies patients especially those in the rural areas eschew patient presentation to the hospital probably due to financial constraint. In other cases when patients are brought to the hospitals are confronted with challenges of lack of human vaccines and immunoglobulins. In some hospitals with available immunoglobulins, the cost of treatment is usually high considering the number of times it would be given for a complete dose. This was inline with recent WHO facts sheet on rabies which stated that "Rabies is a neglected disease of the poor and vulnerable populations whose deaths are rarely reported with inaccessible human vaccines and immunoglobulins" These challenges promote patients' preference to unorthodox means of treatment despite the uncertainty in its provision of cure which sometimes may result to death (Smith and Barssi, 1991; Peden, 2009). Several of such deaths from rabies are undocumented which significantly affects the true prevalence and status of clinical rabies in humans. The increasing number of hospital visitations may not be unconnected with the increasing civilization and public awareness on utilization of Government hospitals for improved healthcare. This seems to corroborate the report of Weiss *et al.* (1998) in USA. In developed countries such as United States of America, the number of human deaths from rabies has presently reduced from 100 *per annum* to an average of 2 to 3 *per annum* (CDC, 2012). This was achieved through animal control, implementation of oral canine vaccination program and effective use of human rabies vaccines and immunoglobulins (CDC, 2012). Integration of these programs in the State policies would sustain the present human rabies status in Umuahia city of Abia State of Nigeria.

In conclusion, the zero prevalence recorded in this study is a laudable achievement which should be sustained by implementation of antirabies programs already on ground in the City.

#### REFERENCES

1. Aghomo O.H.; Oduye O.O.; Tomori O. and Ibe M. A serological survey of rabies virus antibodies in Unvaccinated dogs from four states of Nigeria. *Zaria Veterinarian*, 1987; 2(2): 71-73.
2. Adeiga ,A and Audu R. A. Detection of rabies virus in Saliva of apparently healthy dogs. *Biomedical letters*, 1988; 54: 207 – 2.Pubmed/Google scholar
3. Bello M.; Lukshi B.M.; Usman B. A fifteen year retrospective study of the prevalence of rabies in Bauchi State, Nigeria. *Nigeria Vet. J*, 2007; 28(2): 18-22.
4. Boulger L.R and Hardy J. Rabies in Nigeria in Nigeria. *West African medical journal*, 1960; 9(6): 223-234.
5. CDC, 2012. Human Rabies. Center for Disease Control and Prevention. [www.cdc.gov./human\\_rabies.html](http://www.cdc.gov./human_rabies.html).
6. CDC, 2014. Compendium of Animal Rabies Prevention and Control, 2011. [www.cdc.gov/./publications/](http://www.cdc.gov/./publications/)
7. Chomel, B.; Chappuis, G.; Bullon, F.; Cardenas, E.; De Beublain, T.D and Lombard, M.;Giambruno, E. Mass vaccination campaign against rabies: are dogs correctly protected? *The Peruvian experience. Review of Infectious Diseases*. 1988; 4: 697–702.
8. Clifton, M. How to eradicate canine rabies: a perspective of historical efforts. *Asian Biomedicine*, 2011; 5(4): 559-568.
9. Dodet, B.; Adjogoua, E. V.; Dodte, B. Fighting rabies in Africa: the Afric Rabies Expert Bureau (AfroREB). *Vaccine*, 2008; 26: 6295-6298.
10. Harper, T.K. Rabies Virus: Description Vector Mechanism. Accessed 17 September, 2014: Available [http:// www.tarakharper.com/v\\_rabies.htm](http://www.tarakharper.com/v_rabies.htm)
11. Hiko T.; Gino C.; Matibag, R. A.; Ditangco, K. K.; Yoshi, O. Revisiting rabies in Japan:is there cause for alarm, 2007; 53: 12-18.
12. Knobel, D.L; Cleavelands B. C; Coleman, P.G; Fevre, E.M.; Meltzer, M. I. and Miranda M. re-evaluating the burden of rabies in Africa and Asia. *World Health Organ*, 2005; 83(5): 360-368.
13. Mcshelbwala, P.P.; Ogunkoya A.B.; Maikai B.V. 2013. Detection of rabies antigen in the saliva and brains of apparently healthy dogs slaughtered for human consumption and its public health implication in Abia State. *Veterinary Science*, vol 2013, ID468043, 5pgs.
14. Nwokeukwu H.I.; Ukegbu A.; Emma-Ukaegbu U.; Nwogu-Igbani K.; Alozie G.; Kalu C.; Uwandu O. Dog bites and public health intervention in a tertiary health institution, Southeastern Nig. *Int. j. Epidermiology*, 2015; 44: 1.
15. Ogunkoya A.B.; Garba A.; Oluwagbenga A.; Adeogun O.A. Olugasa B.; Audu.
16. Peden, M. World report on child injury prevention. Calls for evidence based interventions. *International Journal*, 2009; 16(1): 57-8.
17. Rupprecht, C. E.; Hanlon, C. A. and Hemachudka, T. Rabies re-examined. *Lancet infections disease*, 2002; 2: 327 – 43.
18. Smith, G.S.; Barss, P. Unintentional injuries in developing countries: the epidemiology of a neglected problem.*Epidemiological Review*, 1991; 13: 228-66.
19. Thrusfield M *Veterinary Epidemiology*. 3rd ed., UK, Blackwell science Ltd, 2005; 233-250.
20. Warrell, M.J.and Warrel, D.A. Rabies and other lyssavirus disease. *Lancet*, 2004; 363(9413): 959 – 960.
21. Weiss, H.B.; Friedman, D. and Coben, J. H. Incidence of dog bite injuries treated in emergency department. *Journal of the America Medical Association*, 1998; 279: 51 – 53.
22. WHO, 2015. Rabies. WHO Fact sheet N<sup>o</sup> 99. [www.who.int/rabies/epidermiology/en/](http://www.who.int/rabies/epidermiology/en/).