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## **Willingness to pay for rabies pre-exposure vaccination among veterinary students and staff in Ibadan, Nigeria**

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### **Abstract**

**Background:** Rabies pre-exposure vaccination coverage among veterinarians and students has significantly reduced because of the financial constrain created by the university administration, it is, therefore, necessary to develop an alternative financing scheme to ensure access to rabies vaccination to protect these occupational risk groups. The objective was to determine willingness to pay for rabies pre-exposure vaccination and determining factors.

**Methods:** A cross-sectional study was carried out at the faculty of veterinary medicine, University of Ibadan using a structured questionnaire. Cluster sampling method was used to select an average of 44 students from each level of study and an average of 14 staff from each department. The direct customer survey technique was used to determine the amounts respondents are willing to pay. Data was collected and analyzed using SPSS 16.0.

**Results:** Half of the veterinary staff sampled were clinicians and had received pre-exposure vaccination. Pre-exposure vaccination coverage was higher among staff than students and the difference was statistically significant. 86.3% of the respondents were willing to accept pre-exposure vaccination out of which 73.6% were willing to pay should the University administration recommends. Gender, bite history, attitude, awareness, and willingness to accept vaccination were all associated with willingness to pay and were statistically significant. Gender and willingness to accept vaccination were the predictors of willingness to pay. The average amount respondents were willing to pay was \$12.8± \$6.3.

**Conclusion:** A policy should be formulated, either to include the cost of rabies vaccination in students' school fees at a subsidized rate, solicit for external donors to bear the cost, or make pre-exposure vaccination certificate requirement for matriculation into veterinary colleges.

**Keywords:** Pre-exposure vaccination, Rabies, Veterinary students and staff, Willingness to pay, WTP

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## Introduction

More than 8 million people in Africa and Asia receive costly post-exposure prophylaxis (PEP) yearly following dog bite injuries<sup>1</sup>. In Nigeria, prevalence of dog bite was more than 80% and more than 60% of presented dog bite cases tested positive for rabies virus<sup>2</sup>. Veterinary students in Ibadan have been neglected for rabies Pre-exposure prophylaxis (PREP) and those immunized were as a result of PEP following suspected rabid dog bites<sup>3</sup>. Given the high rate of bite injuries from suspected rabid dogs, the difficulties of accessing prompt and appropriate PEP to prevent the development of clinical manifestation of rabies following a bite, and in case of severe bites, particularly to the head and neck, passive immunization with rabies immunoglobulin is important for protection, which is not available across most of African countries<sup>4</sup>. For these reasons, rabies pre-exposure vaccination is therefore highly required for occupation at risk individuals of which category the veterinary students and staff fall into<sup>5</sup>.

The practice of encouraging veterinary students to get vaccinated before their clinical posting has the advantage of ensuring their safety during their training in the veterinary teaching hospital (VTH) and outside of university practical posting and also guaranteed that future veterinary staff have protection from rabies before they entering period of intensive exposure in the profession<sup>6</sup>. In developed countries, presentation of rabies vaccination certificate is part of the requirement for admission into the colleges of Veterinary medicine and the cost of vaccination is borne by individual students and staff.

However, despite the effort of the University of Ibadan authority for decades to

encourage veterinary staff and clinical students in the faculty of veterinary medicine to receive pre-exposure rabies vaccinations, vaccination coverage still remains significantly low despite the inherent risk in their occupation<sup>3</sup>. Rabies pre-exposure vaccination coverage among veterinarians and students has been significantly reduced for 2 decades now because of the financial constrain created on the university administration<sup>3,7</sup>.

In Nigeria, funding of university and health has been on a decline and this has made education and health care financing a major source of concern and has posed challenges to the academics, university policy makers and health experts in Nigeria<sup>8</sup>. The fact now remains that university administration is challenged with maintenance of pre-exposure vaccination sustainability among veterinary students and staff because of economic fatigue and reduction in funds. Therefore, there is a need to develop alternative financing scheme to cater for the preventive health care expenditure which should cover the occupation at risk group in the university. This will ensure that every occupation at risk individuals has access to rabies vaccination to protect them from unsuspecting rabies exposure. It is also important to determine the amount staff and students are willing to pay for rabies immunization program and to know if there will be any difference between how much this group is willing to pay and the actual cost of vaccine. This information will help the university administration and policy makers to know if the introduction of such program justifies the target objective and the pattern of subsidies and supplementary funding from the government or any donor agencies to cover for any different in cost. This information could also

be useful for many developing countries to promote self-paid vaccination among the occupation at risk groups<sup>9</sup>. The study aimed at assessing willingness to pay for rabies pre-exposure vaccination among veterinary students and staffs at the University of Ibadan, Nigeria.

## Methods

### *Study design and area*

Descriptive cross sectional quantitative study among veterinary students and staff using self-administered questionnaires. The study was carried out in the faculty of Veterinary Medicine, University of Ibadan, located at south west, Nigeria.

### *Study population*

All veterinary students and staff of the Faculty of Veterinary Medicine, University of Ibadan comprising the following departments Veterinary Anatomy Physiology, Biochemistry and Pharmacology, Microbiology and Parasitology, Pathology, Medicine Surgery and Theriogenology and Veterinary Teaching Hospital. In the various departments both that students and staff were selected for the study. All staff members of the faculty including veterinarians, animal health technologists, animal handlers, and laboratory technologists as well as all currently registered veterinary students at both undergraduate and postgraduate levels were included in the study. All administrative staff members who have no direct contact with animals and other veterinary staff on-leave were excluded in this study.

### *Sample size determination*

The sample size was determined using sample size formula below<sup>9</sup>

$$n = \frac{Z\alpha^2 P(1-P)}{d^2}$$

where; n = required sample size

Z $\alpha$  = 95% confidence level= 1.96

P = 53.3% (0.53) being the proportion of staff willing to pay for rabies vaccine <sup>3</sup>

D = level of precision = 0.05

1-p = 0.47

Therefore,

$$n = \frac{1.96^2 \times 0.53 \times 0.47}{0.05^2}$$

$$n = 382$$

Adjusting for Non Response Rate: N = n x 1 / (1-10%) = 382.49 x 1 / (0.9) = 382.49 / 0.9 = 425

### *Sampling technique*

Cluster sampling method was utilized. The two clusters were students and staff population

Cluster 1: The student population was divided into 7 strata based on the level of study.

Cluster 2: Veterinary staff was divided into 8 strata based on the number of departments in the faculty (the 7 academic departments and the Veterinary Teaching Hospital.).

Step 1: From each stratum at both the student and staff category, proportional probability sampling of male and female respondents was sampled. The ratio of staff to student in the faculty is 1:3. Therefore 100 veterinary staff was sampled at 14 respondents per department while 325 veterinary students were sampled at 45 respondents per level of study.

### *Data Collection*

Questionnaire was administered to all eligible veterinary staff members and students. Brief information about the research protocol was explained to the participants and ample time was given for them to ask questions for clarification. Informed consent was sought from the participants after this has been

obtained, questionnaire was then self-administered by the researcher within two weeks. Among the questions asked were socio-demography factors such as age, gender, religion, marital status, occupation, educational level, years of occupational experience, knowledge of rabies infection, previous dog bite exposure, rabies vaccination history, awareness of pre-exposure vaccination. Direct consumer survey method was used to determine the amount willing to pay for vaccination. SPSS version 16.0 was used for data entry and analysis. The frequency of both dependent and independent variables was worked out using descriptive statistics technique. Association between independent variable and dependent variables was calculated using Pearson's Chi Square.

#### *Data analysis*

SPSS version 16.0 was used for data entry and analysis. The frequency of both dependent and independent variables was worked out using descriptive statistics technique. Association between independent variable and dependent variables was calculated using Pearson's Chi Square. Further calculation of strength of association and statistical significance between independent and dependent variables was assessed using Binary Logistic Regression analysis.

**Ethical Consideration:** This research was approved by the Ethics Committee of the University of Ibadan located at Room 210, 2<sup>nd</sup> Floor, Institute for Advanced Medical Research and Training, College of Medicine, University of Ibadan, Nigeria. Informed consent of the participants in the study was obtained and respondents were assured of confidentiality of information supplied.

## **Results**

### **Socio-demographic characteristics of respondents**

Table 1 shows socio-demographic characteristics of veterinary medicine students and staff who participated in the study. A total of four hundred and two veterinary students and staff were interviewed. The oldest participant was 67 years while the youngest was 16 years. Only 20.9% were older than 35years. The mean age of the respondents was 27.18±9.67 years. Veterinary staff members were 95(23.6%) while students were 307(76.4%). More than half, 231(57.5%) of the respondents were male and majority 292(72.6%) were single. Their predominant religion was Christianity (86.8%). Three hundred and forty nine (86.8%) belong to the Yoruba ethnic group. One hundred and seventy-five (43.5%) had at least secondary education.

### **Past history of rabies vaccination**

Table 2 shows that the prevalence of pre-exposure vaccination was 121 (30.1%) and university administration was responsible for the payment of 61(50.4%) of the respondents while 43(35.5%) had Veterinary Council of Nigeria (VCN) paid for their pre-exposure vaccination. Out of the 121 respondents who had received pre-exposure rabies vaccine, 54(44.6%) had the three full and complete doses, 33(27.3%) had two doses. Majority 108(91.5%) were vaccinated at the University Health Centre while seven (4.2%) had their vaccination at private hospital. Only 59(48.8%) had pre-exposure rabies vaccination in the last two years. Few 117(29.1%) were on health insurance. Also, the prevalence of animal bite was 104 (25.9%) among the respondents.

**Awareness of rabies pre-exposure prophylaxis**

Table 4 shows that the awareness of rabies pre-exposure prophylaxis among respondents was 306 (76.1%). Many of them got information about pre-exposure

prophylaxis through their lecturers (60.9%) and 83 (20.6%) got their information through social media followed by 78(19.4%) who indicated that they were informed by their colleagues. Only 41(10.2%) indicated that they were informed at the Health Centre.

**Table 1: Socio-demographic characteristics of respondents**

Variable	Frequency(n=402)	Percent
<b>Age</b>		
Mean $\pm$ SD	27.18 $\pm$ 9.67	
<21	111	27.6
21-25	131	32.6
26-30	51	12.7
31-35	25	6.2
>35	84	20.9
<b>Category of respondents</b>		
Staff	95	23.6
Student	307	76.4
<b>Gender</b>		
Male	231	57.5
Female	171	42.5
<b>Marital status</b>		
Single	292	72.6
Married	209	27.1
Divorced	1	2
<b>Religion</b>		
Christianity	349	86.8
Islam	52	12.9
Traditional	1	2
<b>Ethnic group</b>		
Yoruba	333	82.8
Igbo	59	14.7
Hausa	10	2.5
<b>Highest level of education attained</b>		
Secondary	175	43.5
OND	39	9.7
HND	23	5.7
DVM	81	20.1
Master's Degree	47	11.7
PhD	31	7.7
Professional Fellowship	6	1.5

One hundred and sixty- nine (42%) reported that they had been recommended pre-exposure prophylaxis.

**Willingness to pay for rabies pre-exposure vaccination**

Table 5 shows the Willingness to pay for rabies pre-exposure vaccination. Majority

347 (86.3%) were willing to pay for rabies pre-exposure vaccination. Similarly, a large proportion of the respondents 269(66.9%) were willing to pay for rabies pre-exposure vaccination if recommended by the University Administration. Out of the 307 students, 202(65.8%) were willing to pay if University administration refuses to pay.

**Table 2: Past history of rabies vaccination**

Variable	Frequency	Percent
<b>Ever received pre-exposure rabies vaccine</b>		
Yes	121	30.1
No	281	69.9
<b>Person responsible for payment (n=121)</b>		
University Administration	61	50.4
Veterinary Council Of Nigeria (VCN)	43	35.5
Self	17	14.0
<b>Number of doses received</b>		
One	34	28.1
Two	33	27.3
Three	54	44.6
<b>Place where rabies vaccination was received</b>		
University Health Centre	108	91.5
Teaching Hospital	6	3.4
Private Hospital	7	4.2
<b>Receive rabies vaccine in the last two years</b>		
Yes	59	48.8
No	62	51.2
<b>Enrolled on any Health Insurance</b>		
Yes	117	29.1
No	285	70.9
<b>Ever been bitten/scratched by animal in the course of duty/training</b>		
Yes	104	25.9
No	298	74.1

**Table 3: Prevalence of rabies vaccination among veterinary students and staff**

Variable	Prevalence of Rabies vaccination		Chi square	P-value
	Yes (%)	No (%)		
<b>Respondents category</b>				
Staff	64(52.9)	31(11.0)	82.12	<0.0001
Students	57(47.1)	250(89.0)		

When asked for the subsidized price of the three doses of vaccine the following are the

reports among the staff: 28.6% would pay \$17.5, 32.1% would pay \$15.5 and 35.7%



would pay \$14.8 while 3.6% are undecided. When asked for the highest price the staff member would pay for the 3 doses of vaccine, the minimum amount was \$1.9 while the maximum amount was \$26. The average highest amount to be paid for rabies vaccination among staff was \$14.2± \$6.8. Among the student the amount varies, the subsidized amount they were willing to

pay: 21.7% would pay \$17.5, 15.1% would pay \$15.5 and 63.2% would pay \$14.5. When asked for the highest price the staff member would pay for the 3 doses of vaccine, the minimum amount was \$1.2 while the maximum amount was \$33.2. The average highest amount to be paid for rabies vaccination among students was \$12.8± \$6.3.

**Table 4: Awareness of rabies pre-exposure prophylaxis**

Variable	Frequency	Percent
<b>Ever heard of rabies pre-exposure prophylaxis</b>		
Yes	306	76.1
No	96	23.9
<b>Source of information</b>		
Lecturer	245	60.9
Social media	83	20.6
Colleague	78	19.4
Health Centre	41	10.2
<b>Recommendation of rabies pre-exposure vaccination to veterinary students and staff</b>		
Yes	169	42.0
No	233	58.0

**Factors associated with willingness to pay for rabies vaccines**

Table 7 shows that only gender, attitude towards rabies pre-exposure prophylaxis, and willingness to receive rabies pre-exposure prophylaxis are factors associated with willingness to pay for rabies pre-exposure prophylaxis (P-value < 0.05)

**Discussion**

The findings of this study revealed the fact that majority of veterinary students and staff at the University of Ibadan were willingness to pay for rabies pre-exposure vaccination sue to the financial constraint of the University management and awareness of their occupational risk exposure. The result of this study was supported by Yeo and Shafie (2018) who in their study on WTP for Dengue fever vaccination, reported that individuals with higher education level

and those who were willing to accept vaccine were more likely to pay for vaccination. It was documented that the key factors that significantly affected the WTP for vaccination were age, gender, occupation, household income, disease prevention practice, and protection duration of the vaccine <sup>11</sup>. A similar report was documented by Harapan et al in their study of WTP for COVID-19 vaccine and found that being a health-care worker, having a high income, and having high perceived risk were associated with higher WTP thus indicated high WTP for vaccine <sup>12</sup>

We found that a large number of veterinary staff and students at the University of Ibadan had not received rabies pre-exposure vaccination as recommended by WHO and CDC guidelines. The vaccination

**Table 5: Willingness to pay for rabies pre-exposure vaccination among respondents**

Variable	Frequency	Percent
<b>Willingness to accept rabies pre-exposure vaccination</b>		
Yes	347	86.3
No	55	13.7
<b>Willingness to pay for rabies pre-exposure vaccination if recommended by the University Administration</b>		
Yes	269	66.9
No	133	33.1
<b>Price willing to pay for vaccine (Staff)</b>		
Minimum	\$1.9	
Maximum	\$26	
<b>Price willing to pay for vaccine (Students)</b>		
Minimum	\$6.7	
Maximum	\$19.8.	
<b>Amount willing to pay if university administration subsidized (\$) (Staff, 28)</b>		
17.5	8	28.6
15.5	9	32.1
14.8	10	35.7
<b>8.8</b>	1	3.6
<b>Amount willing to pay if University Administration subsidized in US Dollar (Student, 106)</b>		
17.5	23	21.7
15.5	16	15.1
14.8	67	63.2
<b>Requires parent consent before rabies vaccine (n=307)</b>		
Yes	63	20.5
No	244	79.5
<b>Willingness to pay if University administration refuses to pay</b>		
Yes	296	73.6
No	106	26.4

**Table 6: Difference between Willingness to pay for pre-exposure vaccination among respondents**

Variable	Willingness to pay for pre-exposure rabies vaccination		Chi square	P-value
	Yes (%)	No (%)		
<b>Respondents category</b>				
Staff	67	28	9.907	0.725
Students	202	105		



**Table 7: Factors associated with willingness to pay for rabies pre-exposure vaccination among students and staff**

Variable	Willingness to pay for pre-exposure vaccination		Chi square	P- value
	Yes (%)	No (%)		
<b>Gender</b>				
Male	52(77.6)	16(57.1)	4.07	0.04
Female	15(22.4)	12(42.9)		
<b>Age</b>				
<42	38(56.7)	15(53.6)	0.08	0.78
≥42	29(43.3)	13(46.4)		
<b>Religion</b>				
Christianity	61(91.0)	26(92.9)	--	>0.99
Islam	6(9.0)	2(7.1)		
<b>Highest educational level</b>				
HND and below	12(17.9)	10(35.7)	3.63	0.30
DVM	8(11.9)	3(10.7)		
Master's degree	20(29.9)	7(25.0)		
PhD and above	27(40.3)	8(28.6)		
<b>Years of experience</b>				
1-10	25(37.3)	11(39.3)	0.12	0.94
11-20	28(41.8)	12(42.9)		
>20	14(20.9)	5(17.9)		
<b>Ever been bitten by animal</b>				
Yes	32(47.8)	8(28.6)	2.98	0.08
No	35(52.2)	20(71.4)		
<b>Attitude to PrEP</b>				
Poor	14(20.9)	12(42.9)	4.8	0.03
Good	53(79.1)	16(57.1)		
<b>Willing to receive PrEP</b>				
Yes			9.57	0.004
No	62(92.5)	19(67.9)		
Total	5(7.5)	9(32.1)		

rate was very low despite the recent intervention by the Veterinary Council of Nigeria (VCN) in February 2016 that sponsored the vaccination of clinical students most of whom were in 600level during this study. All the 600 level students were vaccinated while in their 500level in February 2016 hence contributed significantly to the few proportion of immunized students reported. Out of the few respondents that were immunized, the University of Ibadan Administration was responsible for the payment for half of them, and one-tenth reported self-sponsored. This

result is consistent with that of Daodu and Oluwayelu (2016). They reported that very few of the respondents had been immunized against rabies<sup>12</sup>. Mary James in her dissertation in Kerala titled "Protection of clinical veterinary staff against rabies in relation to dog bites and scratch exposure". She reported that the prevalence of the pre-exposure vaccination in the staff who participated in her study was 21.1% including the people who took at least one dose of the vaccine<sup>13</sup>. Prevalence of rabies pre-exposure vaccination amongst students in the current study is in contrast with that of

Travejo who conducted a study of pre-exposure vaccinations among Veterinary Medical Association members and managers of animal shelters and wildlife rehabilitation centers in which he asked questions from them and their at-risk staff members. He reported that about 85% of respondents had received the full doses of pre-exposure vaccination with less than 30% had since received a booster. Less than 20% of veterinary staff members had received pre-exposure vaccination<sup>8</sup>

This study revealed that majority of respondents were willing to pay for pre-exposure vaccination similar to what has been reported on other similar vaccines<sup>15</sup> compared to half of the respondents documented by Olugasa *et al.* (2010). According to Chor *et al.*, 2009, before people will accept to pay for a vaccine they must first be convinced of likelihood that the disease will occur in their region and that they are susceptible. Also, they must be convinced that the disease is fatal and finally, they must be convinced of the safety and efficacy of the vaccine before they will accept it<sup>16</sup>. Also, another study reported that WTP increased with age and not really affected by level of education<sup>17</sup>. Our result is supported by a similar report on WTP for Hepatitis B vaccination that WTP for vaccination increased with years of experience and higher income among health workers<sup>18</sup>.

The knowledge of rabies epidemiology in this study did not translate to WTP and this is in agreement with Hou *et al* 2014 that vaccine or disease-related knowledge and perceived vulnerability have no significant effect on WTP<sup>10</sup>. Even though 500level students had the highest knowledge of rabies epidemiology but also the same level

displayed the least WTP for rabies vaccination and all of them were willing to accept vaccination. This was because their immediate seniors in 600level of study recently received rabies vaccination free of charge in February 2016, therefore they could be expecting same privilege. Arifahss *et al*, 2018 confirmed that increase education level, professional experience and knowledge all increases WTP for vaccination. History of disease exposure was strong predictor for WTP for vaccination<sup>19</sup>. And another report stated that Age, high educational attainment, working as a private employee, entrepreneur or civil servant (compared to farmers), being unmarried, and residing in a suburb (compared to a city) were associated with higher WTP<sup>20</sup> Another study reported that individuals not suffering any diseases were more likely to be willing to pay for the HBV vaccine and occupationally exposed individuals were positively correlated with willingness to pay for HBV vaccine<sup>21</sup>

Olugasa *et al.*, (2010) reported more than half of the respondents were willing to pay should the university administration refused to pay. Since the inception of veterinary education in Nigeria until 1998, the cost of pre-exposure vaccination for clinical veterinary students and VTH staff was fully borne by the university administration. The practice had since changed until February 2016 when the VCN took up the responsibility to bear the cost of vaccination for all clinical students in all the 9 accredited veterinary colleges in Nigeria. It has become obvious that a major obstacle that this immunization program encounter is establishing a long-term financial sustainability structure that will continue to maintain affordability and sustainability of

pre-exposure vaccination if there is donor fatigue and gross reduction in fund. This has given rise to the pertinent issue on how much people should be charged. The fact now remain that university administration is challenged with maintenance of pre-exposure vaccination sustainability among veterinary students and staff because of economic fatigue and reduction in funds. The way out to overcome this challenge is for the University administration to either solicit for external sponsor or subsidize the cost of the vaccine to relief the students who were already burdened by the cost of university education.

Only half of veterinary staff received rabies vaccination while training in veterinary school and majority of staff in this category graduated after 2005. This was the last time the university administration paid for rabies vaccination for clinical veterinary students and staff. The total dependence on the university administration to pay for rabies vaccination has been for decades. This has resulted in very poor coverage of rabies pre-exposure vaccination. Though there was very few individuals who self-paid for their vaccination based on recommendation received from health professionals. Even out of the few numbers of the respondents that received rabies vaccination, less than half of them completed the three full doses. The pertinent issue now is to determine how much people will be willing to pay for pre-exposure vaccination. In this situation the University administration needs information on willingness to pay for pre-exposure vaccination. The costs of providing the vaccine would be paid entirely by the students themselves through already existing student fees. Since funding for the program will come from already collected student fees, no new direct costs to the

university or individual students will be incurred. This study found that, for a successful pre-exposure vaccination programs among veterinary students, awareness of the efficacy of vaccination in protecting them against unsuspecting rabies infection and previous recommendation for rabies vaccination were associated with an increased probability of willingness to pay for the vaccination. Majority of respondents said that rabies pre-exposure vaccination is not a policy in the university but this is not true. The failure of the university administration to pay for rabies vaccination did not totally mean it was never a policy. Higher proportion of students were willing to accept vaccination and also pay compared to staff who believed that the university administration should be responsible for payment. This may be because the students enthusiastic and dependent on their parents and guardian to pay on their behalf.

#### *Study limitations and strengths*

This study has several limitations. First, the survey does not evaluate economic factors that affect the WTP of respondents. Second, the cross-sectional data do not support causality and we only report associations. Third, direct consumer survey method used in estimating the WTP has low reliability and validity. Nevertheless, the study contributes to the current literature in several important ways. First, the study could be the first to report veterinary students and staff's WTP for pre-exposure vaccination. Second, the survey covers the entire population of students and staff at the faculty of veterinary medicine, University of Ibadan and so the results may be generalized to veterinary staff and students in other universities. While there are numerous studies on the willingness to pay for other vaccines there are no known

published studies on the WTP for rabies pre-exposure vaccination in human. Hence, this study made an important contribution to the few existing health economics studies on rabies vaccination.

### Conclusion

This study has shown that recommendation of the University administration for self-paid rabies pre-exposure vaccination among students and staff would likely increase WTP. As the university administration of all federal universities in Nigeria are going through financial constrain, the findings of the study may hold similarities if carried out in other veterinary schools. Though there was no report of rabies case among veterinary students and staff in Nigeria, this does not eliminate the fact that they should be protected.

Most of the veterinary colleges in developed countries including South African required rabies vaccination certificates from new candidates applying to study veterinary medicine and the cost was borne by each candidate. The costs of providing the vaccine would be paid entirely by the students themselves through already existing student fees. Since funding for the program will come from already collected student fees, no new direct costs to the university or individual students will be incurred.

### Abbreviation

PREP Pre-Exposure Prophylaxis  
PEP Post-Exposure Prophylaxis  
VTH Veterinary Teaching Hospital  
VCN Veterinary Council of Nigeria  
WTP Willingness to Pay  
WTA Willingness to Accept  
WHO World Health Organization

**Conflict of Interest:** There was no conflict of interest

**Funding:** There was no external funding for this project

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