

The Knowledge and Uptake of Travel Vaccine Among Medical Doctors in a Tertiary Health Institution in Plateau State, North Central Nigeria

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ABSTRACT

Background: Travelers play a significant role in the spread of infectious diseases across international borders, through their travel patterns and behaviors. Travel maybe the only risk factor for infectious diseases that are well controlled in the travelers' country of residence, particularly vaccine-preventable diseases. The role of vaccination among travelers is an essential component of the control of travel-associated infectious diseases. This study was conducted to assess the knowledge and uptake of travel vaccine among medical doctors in Jos University Teaching Hospital (JUTH). **Materials and Methods:** This was a descriptive cross-sectional study conducted in 2013 using quantitative method of data collection among 189 medical doctors. Epi Info™ statistical software package version 3.5.4 was used for data analysis and a $P \leq 0.05$ was considered statistically significant. **Result:** The mean age of the respondents was 33.8 ± 4.5 years, majority of the respondents (96.3%) were aware of travel vaccines with 45 (71.4%) of the 63 respondents who had embarked on international travel prior to the study had taken travel vaccine in their last travel. Knowledge of travel vaccination was found to have statistically significant relationship with uptake of travel vaccine ($P = 0.013$). **Conclusion:** This study has revealed the need to improve the knowledge and uptake of travel vaccine among medical doctors.

Keywords: Knowledge and uptake, travel vaccine, medical doctors

Introduction

Travelers play a significant role in the spread of infectious diseases across international borders, through their travel patterns and behaviors. Travel maybe the only risk factor for infectious diseases that are well controlled in the travelers' country of residence, particularly vaccine-preventable diseases such as hepatitis A, typhoid, polio, and measles. The role of vaccination among travelers is

an essential component of the control of travel-associated infectious diseases.⁽¹⁾

Travel-associated health risks need to be balanced against the positive opportunities associated with interregional travel.⁽²⁾ The primary goal of travel health is to protect travelers from accidents, disease, and death. International travel has dramatically increased during recent years and there has been an increase in diseases and associated public health problems. Each year, 80 million travelers residing in developed countries visit developing countries where the hygienic and epidemiological conditions are fundamentally different from their home country.⁽³⁾ Travelers are increasing risk of exposure to travel-related health problems, including infectious diseases, which may be imported back to their country of residence.⁽⁴⁾ The Centers for Disease Control

Access this article online	
Quick Response Code: 	Website: www.ijcm.org.in
	DOI: 10.4103/0970-0218.158861

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Received: 15-08-14, Accepted: 04-11-14

and Prevention (CDC) recommends vaccine based on destination. Also, the International Travel Vaccination Centre (ITVC) provides full travel vaccination services against international notifiable diseases like yellow fever, cholera, plague, whooping cough, etc.⁽⁵⁾ Other vaccines include meningococcal, polio, measles vaccines, and so on. These vaccines are given for prevention of new infections in the country to be visited and also to prevent the carrying of disease from one destination to others. The vaccination schedule is personalized according to individual traveler's needs and the countries of visit.⁽⁵⁾ In this light, this study aimed to assess the knowledge and uptake of travel vaccine among medical doctors in Jos University Teaching Hospital (JUTH).

Materials and Methods

Study area

Plateau State is located in North Central Nigeria, bounded to the northeast by Bauchi State, northwest by Kaduna State, southwest by Nasarawa State, and southeast by Taraba State.⁽⁶⁾ The state has an estimated population of 3.5 million people based on the 2006 census.⁽⁶⁾ Jos North Local Government Area (LGA) located in the northern part of the state, is one of the 177LGAs in the state having a land mass of 291 km² (112.4m²) and a population of 429,300 people.⁽⁶⁾ JUTH is one of the two tertiary health institutions in Plateau State with a capacity of about 600 bed spaces.⁽⁷⁾ It was established in the year 1981 and is presently located in Lamingo, Jos North LGA. The Hospital had a total of 349 resident doctors in training, as at the time of the study in 16 clinical and nonclinical departments.⁽⁷⁾

Study population

The study population comprised of medical doctors in training in JUTH.

Study design

This was a descriptive cross-sectional study conducted in 2013 using quantitative method of data collection

Inclusion and exclusion criteria

All medical doctors in training inclusive of house officer below the rank of senior registrar who had consented to participate in the study were included, while medical doctors above the rank of registrar and those who declined consent for the study were excluded from the study.

Sample size determination

The sample size was calculated using standard acceptable formula and a 13.7% proportion of respondent with uptake of travel vaccine from a previous study was used and a minimum sample size of 189 was obtained.⁽⁸⁾

Sampling technique

A multistage sampling technique was used in this study.

Stage I

JUTH was selected from the list of the two tertiary health institutions in Plateau State using simple random sampling technique by balloting.

Stage II

All 16 departments in JUTH were selected to form a cluster and all medical doctors who had met the inclusion criteria and had given consent were studied.

Preparation for data collection

Three research assistants were trained on the administration of questionnaires. The tool of data collection was pretested in a secondary health facility in the state. This helped in making appropriate corrections and assessed the ease of administration. Verbal informed consent was sought and obtained from each of the participants with explanation of the aims of the research. Anonymity and confidentiality of the information obtained was assured and maintained.

Data collection instrument

A semi-structured interviewer administered questionnaire was used to obtain information from the participants.

Data collection

Three trained research assistants participated in the data collection in the study after a detailed explanation as to the purpose of the study was given to all the eligible respondents and verbal informed consent was obtained from each subject before the administration of the questionnaire.

Data analysis

Data analysis was done using Epi Info™ statistical software package version 3.5.4 developed by CDC 1600 Clifton Rd, Atlanta, GA 30333, USA. Fisher's exact test was used as test of correction of continuity when chi-square test was not valid to determine the relationship between age, sex, level of knowledge of travel vaccine, and uptake of travel vaccine. A 95% confidence level was used for the study and $P \leq 0.05$ was considered statistically significant.

Scoring and grading of responses

Knowledge of travel vaccine

There were five stem questions on knowledge of travel vaccine with 13 possible responses. Only eight of these responses were correct. One mark was awarded for each correct response and no mark was awarded for wrong response or I don't know response and a total of eight maximum attainable scores were used for knowledge of

travel vaccine. A score of 0-2 marks out of 8 marks was graded to be poor knowledge, 3-5 as fair knowledge, and a score of 6-8 marks out of 8 marks was graded as good knowledge.

Result

One hundred and eighty-nine medical doctors participated in this study, with 135 (71.4%) males and 54 (28.6%) female respondents. More than half (62.4%) of the respondents were married, 69 (36.5%) single, and two (1.1%) widowed in this study. Majority (92.6%) of the respondents practiced Christianity, while only 14 (7.4%) were Muslims [Table 1].

Almost all (96.3%) of the respondents were aware of the concept of travel vaccines, while 141 (74.6%) of the respondents could give correct definition of travel vaccine. More than half (67.7%) of the medical doctors in this study had good knowledge of travel vaccine with a mean knowledge score of 6.12 ± 0.9 out of a total of 8 [Table 2].

In this study, 63 (33.3%) of the respondents had embarked on at least one international travel in the last 5 years preceding this study and of which 45 (71.4%) had taken the required vaccination for the destination countries in their last international travels. Yellow fever vaccine was the most received vaccine by 82.2% of the respondents who had traveled internationally. Other vaccines received were meningococcal vaccine (24.4%), polio vaccine (2.2%), hepatitis B vaccine (6.7%), and cholera vaccine (2.2%). The reasons adduced for low uptake of travel vaccination in this study were paucity of information of travel vaccination (31.2%), distressing protocol and requirement for travel vaccination (43.4%), financial constraints (29.6%), and poor monitoring on uptake of required vaccines for international travels by relevant authorities (54.0%) [Table 3].

The age and sex of the respondents did not have any statistically significant influence on the uptake of travel vaccine among the respondents who had embarked on international travel at one point or the others within the last 5 years prior to this study. However, knowledge of travel vaccines had statistically significant influence on the uptake of travel vaccines ($P = 0.013$) [Table 4].

Discussion

Most of the respondents in the study were between the age range of 21 and 40 years with a mean age of 33.8 ± 4.5 years. This is similar to what was obtained in a Qatar study and contrary to the findings of an American study.^(4,9) This study had a predominantly male respondents which is similar to the findings of study conducted among Australasian travelers.⁽¹⁰⁾ However,

Table 1: Sociodemographic characteristics of the respondents

Characteristics	Frequency	Percentage
Age group (years)		
21-30	50	26.5
31-40	125	66.1
41-50	14	7.4
Total	189	100.0
Mean age	Mean \pm standard deviation	33.8 \pm 4.5 years
Sex		
Male	135	71.4
Female	54	28.6
Total	189	100.0
Marital status		
Single	69	36.5
Married	118	62.4
Widowed	2	1.1
Total	189	100.0
Religion		
Christianity	175	92.6
Islam	14	7.4
Total	189	100.0

Table 2: Knowledge of travel vaccines

Parameters	Frequency	Percentage
Awareness of travel vaccines		
Yes	182	96.3
No	7	3.7
Total	189	100.0
Definition of travel vaccine		
Correct	141	74.6
Incorrect	48	25.4
Total	189	100.0
Level of knowledge		
Poor	7	3.7
Fair	54	28.6
Good	128	67.7
Total	189	100.0
Mean knowledge score	Mean \pm standard deviation	6.12 \pm 0.9

study conducted in Qatar had predominantly female respondents, while an American study had almost equal proportion of male and female respondents.^(4,9)

Majority of the respondents in this study were aware of travel vaccine and could provide information on it to their client with most of them giving correct definition of travel vaccine. However, in a Qatar study only 44.7% of the physicians provided pretravel medical advice to their clients including travel vaccination.⁽⁴⁾ Few of the respondents in this study had made international travel within the last 5 years, of which most of them had taken one form of travel vaccinations or other which is in tandem with result of a Greek study.⁽¹¹⁾ The findings of this study deferred from the low uptake of travel vaccines obtained in a study conducted among

Table 3: Uptake of travel vaccines

Parameters	Frequency	Percentage
History of international travel		
Yes	63	33.3
No	126	66.7
Total	189	100.0
Uptake of travel vaccine in the last international travel		
Yes	45	71.4
No	18	28.6
Total	63	100.0
Type of vaccine received*		
Yellow fever vaccine	37	82.2
Meningococcal vaccine	11	24.4
Polio vaccine	1	2.2
Hepatitis B vaccine	3	6.7
Cholera vaccine	1	2.2
Reasons for poor uptake of travel vaccine*		
Paucity of information	59	31.2
Distressing protocols	82	43.4
Financial constraint	56	29.6
Poor monitoring	102	54.0

*Multiple responses obtained

Table 4: Relationship between factors and uptake of travel vaccine

Characteristics	Uptake of travel vaccine		Total	P-value
	No	Yes		
	Frequency (%)	Frequency (%)		
Age group (years)				
21-30	2 (16.6)	10 (83.4)	12 (100.0)	0.522*
31-40	16 (32.7)	33 (67.3)	49 (100.0)	
41-50	0 (0.0)	2 (100.0)	2 (100.0)	
Total	18	45	63	
Sex				
Female	4 (25.0)	12 (75.0)	16 (100.0)	0.491*
Male	14 (29.7)	33 (70.3)	47 (100.0)	
Total	18	45	63	
Level of knowledge				
Poor	4 (80.0)	1 (20.0)	5 (100.0)	0.013*
Fair	1 (8.4)	11(91.6)	12 (100.0)	
Good	13 (28.3)	33 (71.7)	46 (100.0)	
Total	18	45	63	

*Fisher's exact test

Australasian travellers.⁽¹⁰⁾ This study however did not assess the various destinations of the respondents and their frequency of international travels. The commonly received vaccinations were yellow fever, meningococcal, hepatitis B, polio, and cholera vaccines. This is in agreement with other similar studies; though typhoid, diphtheria, influenza, and hepatitis A vaccinations were also given in some of those studies.^(9,10,11) This variation in types of vaccines received by the traveler in this study and other studies could be as a result of the vaccination requirement of the various destination countries. The

reasons adduced to poor uptake of travel vaccination in this study were paucity of information on travel vaccination, distressing protocols and requirement for the vaccination, cost of vaccination as well as poor monitoring system for ensuring travel vaccination at the entry and exit points of the countries. Reasons stated in others studies were perception of not being at risk, lack of awareness about travel diseases, lack of consideration of vaccination as essential for travelling, cost of the vaccination, and side effect.^(11,12)

Knowledge of travel vaccine was found to statistically influence uptake of travel vaccines in this study; while in another study, age, gender, travel destination, and prior experiences among factors were found to have statistical significant influence vaccination before travelling.⁽¹²⁾ This study has indeed revealed high level of knowledge of travel vaccination with uptake of travel vaccine among medical doctors requiring improvement.

Limitation and Recommendation

This study could not ascertain the actual uptake of travel vaccine among the respondents as well as the full compliance with travel vaccination requirements of the various destination countries. It is however recommended that more studies be conducted to ascertain the actual vaccination status of the respondent as compliance with the requirements of destination countries.

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How to cite this article: Hassan ZI, Afolaranmi TO. The knowledge and uptake of travel vaccine among medical doctors in a tertiary health institution in Plateau State, North Central Nigeria. *Indian J Community Med* 2015;40:177-81.

Source of Support: Nil, **Conflict of Interest:** Nil.