

Knowledge, Attitude and Practice towards Nosocomial Infection Prevention among Primary Healthcare Workers in Rivers-West Senatorial Zone

Godddy-Oti, Ibiba Courage¹ and Onyezere, John Osondu²

¹Department of Human Kinetics, Health and Safety Studies,
Ignatius Ajuru University of Education, Rumuolumeni, Port Harcourt,
Rivers State, Nigeria
ibicourage@gmail.com

²(PhD) Department of Health, Environmental and Safety Education,
University of Port Harcourt, Rivers State, Nigeria
john.onyezere@uniport.edu.ng



Abstract – The study examined knowledge, attitude and practice towards nosocomial infection prevention among Primary Healthcare workers in Rivers-West Senatorial Zone. The study was guided by three research questions, adopted the cross-sectional descriptive survey design and was conducted in Rivers-West senatorial district in Rivers State. The population of the comprised about 781 Health Care workers (HCWs) working in all the primary healthcare facilities in Rivers West Senatorial district. The multi stage sampling procedure was used to select 475 healthcare workers from the facilities in Rivers West Senatorial Zone. The instrument for data collection was a set of structured questionnaire titled “Knowledge, Attitude and Practice towards Nosocomial Infection Prevention Questionnaire (KAPNIPQ). Data derived from the field were analyzed using the statistical tools such as frequency and percentage, mean and standard deviation to answer the research questions. The result showed that the respondents have good knowledge of nosocomial infection prevention as majority had knowledge score between 70-100%; also, Primary Health care workers were found to have positive attitude towards nosocomial infection prevention as the mean scores obtained for all the items were above the criterion mean of 2.50, it is also worthy of note that Primary Healthcare workers had positive practice in relation to nosocomial infection prevention in Rivers West Senatorial Zone. Based on the findings, it was concluded that the primary health care workers had good knowledge, positive attitude and positive practice towards nosocomial infection prevention. It was therefore recommended that there should be regular supportive supervision of healthcare workers to ensure positive practice towards nosocomial infections prevention.

Keywords – Knowledge, Attitude, Practice, Nosocomial Infection, Prevention

I. INTRODUCTION

Nosocomial infections also known as hospital-acquired or healthcare associated infections affect patients undergoing medical care in health care facilities and medical staff working in the facilities. It can be referred to as an infection occurring in a patient during the process of care in the hospital or other healthcare facility which was not present or incubating at the time of admission (Allengrazi, 2011). These infections occur during healthcare delivery for other diseases and even after the discharge of the patient. They also include infections the healthcare worker (HCWS) contract at their workplace (WHO, 2016). Health facilities are the places where health services are provided by professionals like doctors, nurses/midwives, medical laboratory scientists/technician, community health workers, etc. There are three levels of healthcare namely; primary, secondary and tertiary. Primary healthcare

is the first point of contact for the population in the communities. It provides individual and families access to promotive, preventive, curative and referral services in various settings at the grassroots.

Most of these infections are caused by pathogens transmitted from one patient to another because of health care workers (HCWS) who do not practice safety precautions such as hand hygiene, wearing of personal protective equipment, injection safety, sterilization of equipment among others (Mourud, 2010). The incidence and adverse effect of nosocomial infections have been known for several decades and continue to escalate at alarming rates (Collin, 2018).

Nejad, Syed, Ellis and Pittet (2011) stated that the burden of nosocomial infection in developing countries like Nigeria still remain underestimated or even not known mainly because the diagnosis of these infections are complex and surveillance activities to direct interventions need expertise and resources. Many factors are responsible for the development of nosocomial infections in patients such as poor immune status of the patient, extremes of age, use of medical procedures and invasive techniques, emergence of drug-resistant bacteria and over-crowding of hospitals (Saka, Saka & Adebara, 2011). The most frequently encountered nosocomial infections are urinary tract infections (UTI), surgical wound infection (SWI) and lower respiratory tract infection (Oli, Ekejindu, Ejyofor, Oli, Ezeobi & Ibeh, 2016).

In Nigeria, according to Nwadioga, Nwokedi, Jombo, Kashibu & Alao (2009), urinary tract infection is the most commonly occurring nosocomial infection. It causes about 43% of urinary tract infection in Northern part of Nigeria. It was also discovered by Ige, Adesanmi and Asuzu (2011), from a study in Nigeria that urinary tract infections were significantly higher in medical and surgical wards. Surgical site infections are common in obstetrics and gynecology wards while soft tissue infections and blood-stream infections are common in pediatric wards. However, the inadequate knowledge of the magnitude and the risk of these infectious by healthcare workers has been a major limitation to the implementation of data-base guidelines in the prevention of nosocomial infections in Nigeria (Ige, Adesanmi & Asuzu, 2011).

WHO (2014) asserted that the most effective and simple way to prevent nosocomial infection is strict adherence to standard precautions which are sets of recommendations designed to prevent or minimize exposure to infectious agents by healthcare workers, patients and other visitors. These standard precautions include hand hygiene, injection safety, use of personal protective equipment (PPEs), environmental cleanliness, waste management, respiratory hygiene and cough etiquette.

Effective prevention and control of nosocomial infections will depend largely on adequate knowledge, attitude and practice of health workers towards nosocomial infections. Hence, it is based on this premise that this study examined knowledge, attitude and practice towards nosocomial infection prevention among Health Care (PHC) workers in Rivers-West Senatorial Zone, Nigeria.

II. STATEMENT OF THE PROBLEM

The main purpose of establishing healthcare facilities is to ensure that sick people receive proper attention and get solution to their health problems but this has not been the case always. Sometimes sickness get complicated and even those that are healthy get infected in the health facilities due to inadequate knowledge, poor attitude and practice of health workers toward prevention of nosocomial infection. It has been observed that poor injection technique, unsafe injections, poor personal hygiene, non-compliance to standard safety precautions, lack of personal protective equipment, like gloves, mask, gown, improper sterilization of equipment and lack of aseptic technique, over-crowding and lack of ventilation, among others, in the primary healthcare facilities predisposes both patients and HCWs to these infections.

Therefore, with good knowledge, positive attitude and practice of PHC workers toward the prevention of nosocomial infections the expectation of the researcher is the greater reduction of the transmission of these infections in the primary healthcare facilities, hence, the need for this study in Rivers West Senatorial Zone, Nigeria.

III. RESEARCH QUESTIONS

1. What is the level of knowledge of nosocomial infection among primary healthcare workers in Rivers West Senatorial Zone?
2. What is the attitude towards nosocomial infection among primary healthcare workers in Rivers West Senatorial Zone?
3. What is the practice towards nosocomial infection prevention among primary healthcare workers in Rivers West Senatorial Zone?

IV. METHODOLOGY

The design adopted for this study is cross-sectional descriptive survey design and the study was conducted in Rivers West Senatorial District in Rivers State, Nigeria. The population of this study comprised about 781 healthcare workers (HCWs) especially those that have direct contact with the patients (i.e. doctors, nurses, community health worker (CHWs) and medical laboratory scientist/technicians) working in all the primary healthcare facilities in Rivers West Senatorial district. The multi stage sampling procedure was used to select 475 healthcare workers from the facilities in Rivers West Senatorial Zone. The participants for the study were 15 doctors, 30 nurses, 142 medical laboratory technicians, and 288 community health workers (CHWs) comprising all cadre of CHWs (Junior Community Health Extension (JCHEW), Senior Community Health Extension Worker (SCHEW) and Community Health Officers). The instrument for data collection was a set of structured questionnaire titled “Knowledge, Attitude and Practice of Nosocomial Infection Prevention Questionnaire (KAPNIPQ)” with a reliability index of 0.88 using Pearson Product Moment Correlation Coefficient. Simple descriptive statistical tools such as mean and standard deviation were used to answer the research questions.

V. RESULTS AND DISCUSSION

Research Question1: What is the level of Knowledge of Nosocomial Infection among Primary Healthcare Workers in Rivers West Senatorial Zone?

Table 1: Frequency and Percentage Responses on the Knowledge of Nosocomial Infections among Primary Healthcare Workers in Rivers West Senatorial Zone

		N=475				Remark
S/N	Knowledge of Nosocomial Infections	True	%	False	%	
1	Nosocomial infection is an infection acquired from a health facility or hospital	418	88	57	12	***
2	Health care workers and patients can get infection from the hospital or health facility.	441	92.8	34	7.2	***
3	Proper hand hygiene can help to prevent hospital acquired infections.	436	91.8	39	8.2	***
4	Regular training of health care workers on infection prevention techniques can help to reduce the spread of nosocomial infections.	440	92.6	35	7.4	***
5	Nosocomial infections can be transmitted through medical equipment.	449	94.5	26	5.5	***
6	Wearing of personal protective equipment prevent nosocomial transmission.	439	92.4	36	7.6	***
7	Recapping of needles can lead needle stick injuries and infections.	422	88.8	53	11.2	***
8	Surgical/invasive procedures can expose patients to nosocomial infections.	430	90.5	45	9.5	***
9	Nosocomial infection can be spread through contact with hands of the care workers.	380	80	95	20	***
10	Immersing instrument in JIK solution after use for 10 minutes only is sufficient enough to prevent spread of infections.	303	63.8	172	36.2	**
11	Use of water only is not an effective hand wash techniques	414	87.2	61	12.8	***
12	Considering all unsterile needle and sharps as contaminated can reduce the spread nosocomial of infection (NI).	363	76.4	112	23.6	***

Key: *** Good Knowledge:70 -100% **Poor Knowledge:40-69% * Low Knowledge:0-39%

Table 1 shows the frequency and percentage responses on the knowledge of nosocomial infections among primary healthcare workers in Rivers West Senatorial Zone. The result showed that the respondents have good knowledge of nosocomial infections prevention. This is evident from the Table 1 above with responses from the respondents showing that items 1, 2, 3, 4, 5, 6, 7, 8, 9, 11 and 12 had greater number of percentages which eventually summed up to them having good knowledge of nosocomial infection prevention in Rivers West Senatorial Zone. It is only in item 10 that respondents were found to have poor knowledge of nosocomial infection prevention (63.8%).

This finding is in line with that of Alnoumas, Enezi, Isaeed, Makhoul & El-Shazly (2017) who carried out a study on knowledge, attitude and behaviour of primary health care workers regarding health care-associated infections in Kuwait. The study revealed that, the level of knowledge of respondents were high and in line with current scientific evidence since most of them (78.3%, 73.4% and 69.2%) respectively were aware that a healthcare worker can acquire infectious diseases from a patient.

Research Question 2: What is the attitude towards nosocomial infections prevention among primary healthcare workers in Rivers West Senatorial Zone?

Table 2: Mean and Standard Deviation on the Attitude towards Nosocomial Infection Prevention among Primary Healthcare Workers in Rivers West Senatorial Zone

		N=475					
S/N	Attitude towards Nosocomial Infections	SA	A	D	SD	\bar{x}	SD
1	Adherence to simple hand hygiene techniques can reduce incidence of nosocomial infection.	323	133	19		3.64	0.56
2	Carelessness of health care workers (HCW) can lead to Nosocomial infection.	347	113	15		3.70	0.52
3	Adherence to precautionary measures can prevent nosocomial infection.	303	154	18		3.60	0.56
4	Posting universal safety precaution guidelines in the facilities encourages compliance and prevents infection spread.	248	191	34	2	3.44	0.64
5	Routine vaccination of health care workers can reduce the incidence of nosocomial infection.	248	146	76	5	3.34	0.78
Grand mean						3.55	0.36

Criterion cut off mean=2.50

Table 2 shows the Grand mean and standard deviation ($\bar{x} = 3.55$, $SD = 0.36$) on the attitude towards nosocomial infection prevention among primary healthcare workers in Rivers West Senatorial Zone. The attitude of primary healthcare workers towards nosocomial infection prevention in Rivers West Senatorial Zone can be seen in Table 2 which contains 5 items ranging from adherence to simple hygiene, carelessness of health care workers leading to nosocomial infections, adherence to precautionary measures can help prevent nosocomial infections, posting of universal safety precaution guidelines in facilities encourages compliance, carelessness of health care workers (HCW) can lead to Nosocomial infection ($\bar{x} = 3.70$, $SD = 0.52$), while the least was that Routine vaccination of health care workers can reduce the incidence of nosocomial infection. ($\bar{x} = 3.34$, $SD = 0.78$). The result showed that Primary Health care workers have positive attitude towards nosocomial infection prevention as the mean scores obtained for all the items were above the criterion mean of 2.50. This finding therefore is in line with that of Joel (2017) who carried out a study on knowledge, attitude, compliance factors associated with hospital acquired infections and prevention among healthcare workers in Rivers State. The findings of the study revealed that healthcare workers had positive attitude towards the prevention of hospital acquired infection with grand means of 3.29.

Research Question 3: What is the practice of Nosocomial Infections Prevention among Primary Healthcare Workers in Rivers West Senatorial Zone?

Table 3: Mean and standard deviation on the Practice towards nosocomial Infections Prevention among Primary Healthcare Workers in Rivers West Senatorial Zone

		N=475					
S/N	Practice of nosocomial infections prevention	A	O	R	N	\bar{x}	SD
1	I wash my hands with soap and water before and after attending to patients	365	87	12	11	3.70	0.63
2	I wash my hands immediately after removing gloves from your hands.	387	71	6	11	3.76	0.59
3	I used hand sanitizers after procedures.	239	190	40	6	3.39	0.70
4	I remove rings and bracelets before commencing hand hygiene.	293	120	37	25	3.43	0.85
5	I wash my hand immediately I come in contact with blood and body fluid or other contaminate objects.	420	37	18		3.85	0.45
6	I go for vaccination against some common infection s like hepatitis B, Influenza virus, tuberculosis etc.	250	129	53	43	3.22	0.97
Grand mean						3.47	0.42

Criterion cut off mean=2.50

Table 3 shows that the analysis of mean and standard deviation on the practice of nosocomial infection prevention among primary healthcare workers in Rivers West Senatorial Zone. The grand mean and standard deviation based on the items responded to by the Primary Healthcare workers was $\bar{x} = 3.47$, $SD = 0.42$. The key practice items used in assessing the attitude of primary health care workers towards nosocomial infection prevention in Rivers West Senatorial Zone were washing my hand with soap and water before and after attending to patients ($\bar{x} = 3.70$, $SD = 0.63$); washing my hands immediately after removing gloves from the hands ($\bar{x} = 3.76$, $SD = 0.59$); I used hand sanitizers after procedures ($\bar{x} = 3.39$, $SD = 0.70$); I remove rings and bracelets before commencing hand hygiene ($\bar{x} = 3.43$, $SD = 0.85$); I wash my hand immediately I come in contact with blood and body fluid or other contaminate objects ($\bar{x} = 3.85$, $SD = 0.45$), while the least was that I go for vaccination against some common infections like hepatitis B, Influenza virus, tuberculosis etc. ($\bar{x} = 3.22$, $SD = 0.97$). The criterion mean is 2.50 which is less than the mean obtained for each item on the Table measuring practice, therefore it was concluded that the Primary Healthcare workers has positive practice in relation to nosocomial infection prevention in Rivers West Senatorial Zone.

The finding contradicts that the study of Alrubaiee, Baharom, Shahor, Dand and Basaleem (2017) carried out on knowledge and practices of nurses regarding nosocomial infection control measures in private hospitals in Sanaa City, Yemen. The finding revealed that most of the nurses about (71%) had fair practices about nosocomial infections preventive measures while only 26% of them had good practices and only 3% of them had poor practices.

VI. CONCLUSION

Based on the findings of the study it was concluded that majority of the respondents have good knowledge of nosocomial infection prevention. Also, the result showed that Primary Health care workers used in the study have positive attitude towards nosocomial infection prevention as the mean scores obtained for all the items were above the criterion mean of 2.50. Furthermore, it was concluded that the Primary Healthcare workers have positive practice in relation to nosocomial infection prevention in

Rivers West Senatorial Zone because the mean obtained for each item on the Table measuring practice were higher than the criterion mean of 2.50.

VII. RECOMMENDATION

Based on the findings of the study, the following recommendations were made:

1. Stakeholders in primary healthcare should create more awareness on nosocomial infection prevention using Information Education and Communication (IEC) Materials.
2. There should be regular supportive supervision of healthcare workers to ensure positive practice towards nosocomial infections prevention.
3. Facility heads should ensure that the universal safety precaution guidelines are posted conspicuously in the facilities.

REFERENCES

- [1] Allergrazi, B. (2011). Report on the burden of endemic health care-associated infections worldwide. WHO Geneva.
- [2] Alnoumas, S. R., Fayda, A. I., Meshal, M. & Al Gama, M. (2012). Knowledge, attitude and behavior of primary 1-lealthcare-associated infections in Kuwait, greener *Journal of Medical Science*. 2(4): 092-098 Doi:10.15580/Gjms 4.08d1 f22S. <https://wwreseafchgate.net>.
- [3] Alrubaiee, G. Baharom, A., Shashar H.K, Daud S.M. & Basalem H.O. (2017). Knowledge and practices of Nurses regarding nosocomial infection control measures in private hospitals in Sana'a city in Yemen. *Safety in Health*, 3 (16), DOI 10.1186/s40886-017-0067-4
- [4] Collins, A. S. (2008). Preventing Healthcare-Associated infections. In: Hughes R. C, Editor. Patient Safety and Quality: An Evidence-Based Handbook for Nurses. Rockville (MD): Agency for Healthcare Research and Quality (US). Chapter 4. Available from: <http://www.ncbi.nlm.gov/books.NBK2683>.
- [5] Ige, O. K, Adesanmu, A. A. & Asuzu, M. C. (2011). Hospital-acquired infections (HALs) in a Nigerian tertiary health facility. Act audit of surveillance reports. *Nigerian Medical Journal*. Wollers Khianes-Medknow Publications.
- [6] Joel, C. (2017). Knowledge, attitude, compliance factors associated with hospital acquired infections and prevention among healthcare workers in Rivers State. Unpublished Ph.D Thesis, University of Port Harcourt. Port Harcourt.
- [7] Mound, H.R (2010). Prevention of Nosocomial infection. Charles University in Prague Diploma Thesis.
- [8] Nejad, S. B., Syed, S. B., Ellis, B. & Pittet, B. (2011). Health-care-associated infection in Africa: a systemic review. *Bulletin of the World Health Organization*. 89: 757-765. Doi:102471/BLT11.08179.
- [9] Nwadioha, S., Nwokedi, E., Jombo, A., Kashibu, E & Alao, O. (2009). Pattern of unpathogenic bacterial isolate from community and hospital acquired urinary tract infections in Nigerian tertiary hospital. *International Journal of Infectious Diseases*. 8:1 Pubmed.
- [10] Oli, A. N., Okoli, K. C., Ujam, N. T., Adje, D. U. & Ezeobi, I (2016). Health Professionals knowledge about relative prevalence of hospital-acquired infections in Delta State of Nigeria. *The Pan African Medical Journal* 24:148. Doi 10.11604/pamj.2016.24.148.9270.
- [11] Saka, M. J., Saka, A. O. & Adebara, V. O. (2011). Prevention of Nosocomial infections in the new born. The practice of private health facilities in rural communities of Nigeria. *International Infectious Diseases*. 1:9, Pubmed.
- [12] World Health Organization (2014). Health care-associated infection fact sheet.