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The Practice of Universal Precautions against Body Fluid Borne Infection among Radiology Staff in Some Teaching Hospital in Northern Nigeria

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Abstract

Title: The Practice of Universal Precautions against Body Fluid Borne Infections among Radiology Staff in Some Teaching Hospital in Northern Nigeria.

Objectives**;** The aim of this study was to evaluate the knowledge and practice of universal precaution against fluid borne infections among radiology staff in northern Nigeria teaching hospitals to elicit responses to questions regarding their knowledge and practice of universal precaution.

Methods**:** A prospective cross sectional study using structured questionnaire was conducted among radiology staff practicing in teaching hospitals in northern Nigeria. The questionnaire was sent out by post and the response rate over a period of two months period was 52.5%, (n=63). Descriptive statistics such as mean, frequency and percentages were generated using statistical package for social sciences (spss) version 14.0.

Result**;** Results show that 95.3%, (60) of the radiology staff come in contact with body fluid in their work while 87.3%, (55) have good knowledge of universal precaution. There were 72.7%, (46) of the studied staff who practice universal precaution. Only 41.3%, (26) of the staff use the incident reporting system when exposed to patients body fluid. It also found managements laxity in providing all necessary personal protective equipment such as gloves, mask, goggles, and aprons.

Conclusion**:** This study found radiology staff of teaching hospitals in northern Nigeria have satisfactory knowledge of universal precaution which is not matched by practice.

Keywords: Universal Precautions, Fluid-borne Infection, practice, Radiology, Knowledge

INTRODUCTION

Universal precautions as applied to blood and body fluids that has been implicated in the transmission of blood borne infections such as semen, breast milk, vaginal secretions, synovial fluid, cerebrospinal fluid, amniotic fluid, and any body fluid contaminated with blood[1]. Since medical history and examination cannot reliably identify all patients infected with blood and body fluid-borne pathogens such as HIV, and Hepatitis B virus (HBV), amongst others, universal precautions should be consistently used for all patients regardless of their infectious status or perceived risk[2]. Exposure of radiology staff to blood and body fluid borne pathogens can significantly reduce by following the universal precautions which will reduce the risk of radiology staff contracting infections. With the wide range of practice settings for the radiology staff, such as Diagnostics, therapeutics and interventional procedures, it is imperative that each practitioner understands and be able to implement universal precautions as they relate to specific professional settings. Universal precautions assumes that anybody in the hospital especially patients, is potentially a carrier of blood-borne pathogens and therefore all patients are treated in the same way as though they were infected[3]. Infection control in the health care institution is essential to the safety of the patient, their families, and the health care workers. All health care workers are thought the concepts and procedures for infection control before they begin to work in their various specialty areas and all are responsible for complying with infection control precautions. A study by Marcus showed that only four (4) persons were seroconverted out of 1,201 health care workers exposed to HIV infected blood. Even though there is a low prevalence of HIV acquired in hospitals by health care workers (4 in 1,201) there is need to prevent health care workers because man power will be depleted[4]. Patients come to radiology department from different environments and the possibility that they will bring diseases with them is even greater here than elsewhere. Though some patients seem to be in good health, all must be treated and regarded as carrier of diseases and treated as such. Universal precautions became infection control polices because of the HIV epidemic; they are effective against many infectious diseases and will protect health care workers in all areas of work. The CDC prescribed Universal precautions for all health care workers when caring for patients in whom there is a possibility of coming in contact with blood or body fluid of patients. Universal precautions as recommended by the CDC, follows that;

1: Gloves should be worn for touching blood, body fluids mucous membranes or non- intact skin of any patient.
2: Gloves should be worn for handling items or touching surfaces soiled with blood or body fluids. This includes

all radiographic examinations, equipment and accessories.
3: Gloves should be changed and hands washed after each patient contact.
4: Mask or face shield and eye protections should be used any time there is a chance of splashes or droplets of blood or body fluids may touch the face or eyes.
5: Gloves and impermeable aprons must be worn when clothing is likely to be soiled by splashes of blood or body fluids.
6: Great care must be taken to avoid needle sticks or cut from scalpels blades or other sharp instruments that are used for penetrating the skin.
7: Hypo-dynamic needles should not be recapped, bent, broken, or separated from the syringe. The must be placed immediately after use in to a puncture resistant containers meant for this purpose.
8: Puncture resistant containers for used equipments must be readily available throughout the hospital or radiology department.
9: Items that are to be reused must be placed into designated puncture resistant containers for transport to the area designated for recycling.
10: Mouth piece and resuscitation devices must be kept in all diagnostic examination and treatment rooms so that in the events of cardiopulmonary resuscitation, the care provider does not have to do this on a mouth to mouth basis.[5]

Laxity and none adherence to universal precautions among radiology staff exposes them to a high risk of contracting infection which may impair their health and affect effective health care delivery[6]. This study is intended to help reinforce existing knowledge and also serve as a self-teaching instrument in areas where there has been little or no knowledge of universal precautions.

MATERIALS AND METHOD

A Convenience and a purposive sample of one hundred and twenty clinical radiology staff and their assistants were chosen for the study. This consist radiologists, radiographers, radiologic technicians, registered nurses who were on employment of these hospitals. Non clinical staffs such as Clerks, typist, billing officers and dark room technicians who are not exposed to the risk of fluid borne hospital infections were excluded from the study. The data was collected using a seventeen (17) item scale structured self-completion questionnaire. The questionnaires were pilot tested by the researcher and validated by the project supervisor, and distributed to the radiology staff of selected teaching hospitals in northern Nigeria during the period of the study. These include UMTH, ABUTH, and JUTH. The data collected were analyzed using the statistical package for social sciences (SPSS) version 14.0. Descriptive statistics such as frequencies, percentages, and mean were generated for the studies.

RESULT

Sixty three (63) out of 120 questionnaires distributed were filled out and returned within the period of two (2) months that is from August to October 2008, giving a response rate of 52.5%.

Demographic characteristics of the respondents showed 63.5%, (40) males and 36.5%, (23) female. About 39.7 %, (25) were within the age of 20 – 29 years, 33.3%, (21) were within the ages of 30 – 39 years, 22.2%, (14) were within the ages of 40 – 49 years, and 4.8%, (3) were 50 years and above. The education cum professional qualification of the respondents were, West African Senior School Certificate (WASSC),with 25.4% (16), Diploma Certificate of Radiography (DCR) with 11.1%, (7), Registered Nurses (RN) with 6.3%, (4), while 28.6%, (18) had Bachelor of Science (BSc), 6.3%, (4), had Masters of Science (MSc) and 22.2%, (14) had MBBS and above as their highest qualification. The study reveals that 63.5% of the respondents were males and 36.5% female implying that more of the respondents were males. It also shows that the respondents between the age group of 20 – 29 years had the highest frequency, that is 39.7% and those with ages of above 50 had the lowest frequency (Table 1).

On the relationship between qualification and knowledge of universal precaution, It was found that 55 (87.3%) of the respondents have idea of universal precaution and about 8 (12.7%) had no idea of universal precaution. This shows that most of the respondents have good idea of what universal precaution (Table 2).

On the practice of Universal precaution by radiology staff using preventive measures, about 57 (90.4 %) of the respondents use gloves, 52 (82.5%) wear gowns, 32 (50.7%) use mask, 28 (44.4%) use mouth piece when carrying out resuscitations in which there is possibility of coming in contact with patient body fluids, while 36 (57.1%) abstain from direct patient care when infected (Table 3).

On management's responsibility in the provision of personal protective equipment, it found that management did not fairly provide all the necessary personnel protective equipments, with 49 (27.3%) gloves 61 (96.8%) mask 37 (58.7%) and aprons 53 (84.5%). These lapses were found and it gives room for improvement (Table 4).

On respondents practice of proper disposal of sharp waste materials and other waste products, and the use of incident reporting system when exposed to the blood or body fluids of patients, this found that

respondents practice good waste disposal 52 (82.6%) disposes sharp waste into puncture resistant container and 61 (96.8%) disposes other waste materials in to waste containers. There was a poor practice of incident reporting system when inadvertently exposed to blood and body fluids of patients 34 (54.0%) (Table 5).

DISCUSSION

Universal precaution in fluid bone infections includes a wide range of procedures carried out regularly by healthcare workers during any procedure where there is a possibility of coming in contact with blood or body fluids of patients, which are strictly adhered to in order to protect self, patient and other co-workers from infections.

The results of this study showed that more than half of the respondents were male 63.5%, (40), while 36.5%, (23) were female. Signifying that most of the radiology staff in northern Nigeria were male. There were more respondents within the age group of 20 – 29 years, 39.7%, (25), followed by 30-39 years with 33.3%, (21) while those within the age range of 50 years and above being the list with 4.8%, (3). There were more respondents with BSc. with 28.6%, (18), showing that more of the respondents were graduates.

About 95.3%, (60) of the respondents indicated contact with body fluids of patients signifying that radiology staff are exposed to infections. This agrees with a study by Hansen[12] that procedures in which there may be exposure to various body fluids poses a risk to healthcare workers, including those in radiology.

It was found that the respondents had good knowledge of universal precautions 87.3%, (55) which did not directly translate to practice of universal precaution using protective measures 65.0%, (41). This could be due to inadequate facilities and protective equipments coupled with heavy work load. This concurs with the findings of Hesse et al.,[2] who alleged knowledge of universal precautions did not match the practice of universal precautions (92% verses 71%).

The study found that management did not fairly provide personnel protective equipment 79.5%, (49) with gloves having 96.8%, (61) mask 58.7%, (37) and aprons 84.5%, (53). This could be the reason or cause of inadequate practice of universal precaution by the radiology staff in northern Nigeria. This agrees with the findings of Aisien et al.,[3] that poor adherence to universal precaution was attributed to lack of knowledge (48%) and availability of materials (60%).

About 82.6%, (52) of the respondents practice sharp waste disposal into puncture resistant containers and 96.9%, (61), use waste containers for disposal of other waste materials and 41.3%, (26) use the incident reporting system when exposed to blood and body fluids of patients. This could be due to inadequate and poor provision of such materials by management. This agrees with the findings by Chelenyane M. and Endacott R[6], that constraint that may hinder compliance with universal precaution are lack of appropriate facilities, a shortage of equipment and materials, inadequate staffing and absence of sustainable in-service educating programs.

CONCLUSION

The results from the study showed that radiology staff in northern Nigeria have good knowledge of universal precaution, though this did not actually match the level of practice. However, it could be attributed to lack of appropriate facilities, shortage of equipment and materials, inadequate staffing and absence of sustainable in service educating programs to create awareness and reinforce existing knowledge. This study also found managements laxity in the provision of all the necessary protective materials like gloves, mask, aprons and other personnel protective devices and a good working environment to implement universal precaution in the radiology departments.

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Table 1: Demographic Characteristics of the Respondents

GENDER		
Gender	**Frequency**	**Percentage (%)**
Male	40	63.5
Female	23	36.5
Total	**63**	**100**
AGE		
Age Groups (Years)	**Frequency**	**Percentage (%)**
20 – 29	25	39.7
30 – 39	21	33.3
40 – 49	14	22.2
50 and above	3	4.8
Total	**63**	**100**
QUALIFICATION		
Qualification	**Frequency**	**Percentage (%)**
WASSCE	16	25.4
DCR	7	11.1
RN	4	6.3
B.Sc.	18	28.6
M.Sc.	4	6.3
MBBS and above	14	22.2
Total	**63**	**100**

Table 2: Cross Tabulation of Qualification and Knowledge of Universal Precaution

Qualification	Knowledge of Universal Precaution		
	Have idea of Universal Precaution	No Idea	Total
WASSC	12 (75.1%)	4 (25%)	16 (100%)
DCR	6 (85.7%)	1 (14.3%)	7 (100%)
RN	4 (100%)	0 (0%)	4 (100%)
B.Sc	16 (88.9%)	2 (11.1%)	18 100%
M.Sc	3 (75%)	1 (25%)	4 (100%)
MBBS and above	14 (100%)	0 (0%)	14 (100%)
Total	**55 (87.3%)**	**8 (12.7%)**	**63 (100%)**

KEY

WASSC	=	West African Secondary School Certificate Examination
DCR	=	Diploma Certificate in Radiography
RN	=	Registered Nurse
B.Sc.	=	Bachelor of Science
M.Sc.	=	Masters of Science
MBBS	=	Bachelor of Medicine, Bachelor of Surgery

Table 3: Practice of Universal Precaution using Preventive Measures

Preventive measures	Apply measures	Don't apply measures	No response	Total
Using gloves	57(90.46%)	6(9.5%)	0(0%)	63(100%)
Wearing gowns	52(82.5%)	11(17.5%)	0(0%)	63(100%)
Using mask	32(50.7%)	31(49.2%)	4(6.5%)	63(100%)
Using mouth piece	28(44.4%)	31(49.2)	4(6.5%)	63(100%)
Abstinence from direct patient care when infected	36(57.1%)	21(35.3%)	6(9.5%)	63(100%)
Total	**41(65.0%)**	**20(31.8%)**	**2(3.2%)**	**63(100%)**

Table 4: Management Responsibility

Management provision of:	Apply measures	Don't apply measures	No response	Total
Personnel protective equipments	49(27.3%)	13(20.6%)	1(1.6%)	63(100%)
Gloves	61(96.8%)	2(3.2%)	0(0%)	63(100%)
Mask	37(58.7%)	24(38.1%)	2(3.2%	63(100%)
Aprons	53(84.5%)	8(12.9%)	2(3.2%)	63(100%)
Total	**50(79.5%)**	**12(18.7%)**	**1(1.6%)**	**63(100%)**

Table 5: Practice of Universal Precaution Using Proper Disposal Methods

Practice	Always practiced	Not Practiced	No Response	Total
Dispose sharps waste into puncture resistant containers	52(82.6%)	10(15.8%)	1(1.6%)	63(100%)
Use of waste containers	61(96.8%)	2(3.2%)	0(0%)	63(100%)
Use of incident reporting system	26(41.3%)	34(54.0%)	3(4.8%)	63(100%)
Total	**47(73.6%)**	**15(24.3%)**	**1(2.1%)**	**63(100%)**

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