

## Knowledge And Compliance With Standard Precautionary Measures Among Nurses In Madonna University Teaching Hospital, Elele, Rivers State

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**Abstract:** The study determined the knowledge and compliance with standard precautionary measures among nurses in Madonna University Teaching Hospital Elele (MUTH) Rivers State. Two (2) research questions based on the two (2) objectives were formulated. Descriptive survey research design was adopted. The sample for the study consisted of 102 nurses working in Madonna University Teaching Hospital Elele in Rivers State. The main instrument used for data collection was a self structured questionnaire distributed to the nurses in their different wards and units of MUTH, Elele. The self structured questionnaire was validated by experts in the field. The reliability of the instrument was established through test re-test method outside the study population which yielded a high positive correlation of 0.86. The data was collected and analyzed using descriptive statistics of frequency and percentages. Based on the findings, the study revealed that out of 92 respondents, 89 (96.7%) of the respondents have good knowledge of standard precaution, 80 (86.96%) comply with standard precautionary measures. The hypothesis was tested, there was no significant relationship between years of service and compliance with the standard precautionary measures ( $\chi^2$  2, .05,  $p=.425$ ). The null hypothesis was not rejected at .05 alpha level

It was concluded that knowledge and compliance with standard precautionary measures among nurses in MUTH was good. In recommendation, the factors that promote compliance should be encouraged.

**Key words:** knowledge, Compliance, Nurses, Standard Precaution

### INTRODUCTION

#### *Background of the study:*

The importance of compliance with standard precautionary measures cannot be over emphasized. The recent outbreak of Ebola Virus Disease in West Africa has reawakened the consciousness of compliance with standard precautionary measures among health care workers. The practice of compliance is a way of providing quality health care service to ensure the safety of the patient and health care providers. Compliance on the part of healthcare workers with standard precautions has been recognized as an efficient means to prevent and control health care-associated infections in patients and health workers<sup>(1),(2)</sup>.

Health care workers (HCWs) are expected to render health care services efficiently and stay healthy, patients are expected to receive health care and recover without being further infected through contact with care givers. Reports have shown that this is not always the case. Non-compliance has been observed among health care workers which was attributed to their belief that their workload is increased by adhering to standard precautions and therefore, these procedures are difficult to accommodate due to day to day current clinical pressures, (Cutter & Jordan, 2004). Other reasons for non-compliance among HCWs include perceived reduction in dexterity when wearing gloves and the absence of penalties,<sup>3</sup>.

WHO,<sup>4</sup> reported that about 2.5% of HIV cases and 40% of HBV and HCV occur among health workers due to exposure to needle stick injuries and other sharps. This has resulted to morbidity and mortality of HCWs and even patients. Patients also stay in the hospital longer days than necessary due to wound breakdown and nosocomial infections, thus creating a high economic burden on them and their families.

Health care workers are at risk of various occupational hazards in the hospital, including exposure to blood and body fluid borne infections such as Ebola Virus Disease (EVD), Human Immune Virus (HIV) and hepatitis B and C Virus (HBV and HCV); infection from sharp injuries and contact with body fluids. On December 6, 2005, occupational safety and health administration (OSHA) mandated a protective approach against occupational exposure of health workers, OSHA's focus is on health workers and patients protection not patients exclusively<sup>5</sup>. Developing countries, which account for the highest prevalence of HIV infected patients in the world, also record the highest rate of needle-stick injuries (CDC, 2005). The risk of seroconversion following a needle-stick injury from an HCV-antigen-positive patient is estimated to range from 1.2% to 10% (Mizuno, 2005) and as there is no immunization currently available for HIV and HCV infection, it is therefore, important to prevent infection by preventing exposure to infection.

Standard precautions are a set of measures which could be aseptic technique, isolation technique, environmental control

among others<sup>(3),(6)</sup> formulated to prevent transmission of droplets, airborne and/or blood borne pathogens when providing health care, since identification of patients infected with these pathogens cannot be reliably made by medical history and physical examination, the centre for disease control<sup>(7)</sup> has recommended that standard precautionary measures should be used on all patients, regardless of knowledge about their infectious status. The CDC advises that in cases of airborne infections, negative-pressure rooms should be used in hospitals if available,<sup>(8)</sup>. The body substance isolation (BSI) also advocates that since all body substances are potentially infectious, gloves should be worn for anticipated contact with these substances<sup>(9)</sup>

Standard precautionary measures observed by health care providers while carrying out medical procedures or services is to prevent infections. It is designed to reduce the risk of transmission of micro-organism from both recognized and unrecognized sources of infection in health care settings and apply to all patients regardless of their diagnosis and shall be implemented when in contact with any body's fluids such as blood, semen, vaginal secretions, synovial fluid, amniotic fluid, cerebrospinal fluid, Pleural fluid, peritoneal fluid, pericardial fluid, faeces and urine.

Compliance with standard precautionary measures has been shown to reduce the risk of exposure to blood and body fluids<sup>(10)</sup>. Nurses are faced with professional hazards such as needle-stick injuries and blood bone infections in their day-to-day activities in the work place. Essentially, standard precautions are good hygiene habits such as hand washing and the use of gloves and other barriers or handling of hypodermic needles and scalpels and aseptic techniques. Hand decontamination is the most effective means of promoting asepsis and preventing cross infection<sup>(11)</sup>.

Hand washing with soap and water is the best way to reduce number of germs. Indications for standard precautionary measures maintain that patients have a right to be protected from preventable infections and nurses have a duty to safeguard the wellbeing of their patients and themselves<sup>(7)</sup>.

Findings from this study may help to determine how nurses comply with standard precautionary measures, good compliance will be encouraged while poor compliance will be discouraged and measures to motivate compliance suggested.

Moreover, the findings from the study may be utilized by the health institutions to evaluate quality assurance for example rate of wound healing by first intention, and thus reduce the morbidity and mortality rate from wound infection, breakdown or poor healing. The government via the health institution could utilize the finding of the study to formulate the necessary policy and provide resources/equipment needed to promote compliance with standard precautionary measures.

The study seeks to determine the knowledge of and compliance with standard precautionary measures among nurses in Madonna University Teaching Hospital.

### ***Objectives of the study are to determine:***

- a. Knowledge of standard precautionary measures among nurses in Madonna University Teaching Hospital Elele.
- b. Compliance of nurses in Madonna University teaching hospital Elele with standard precautionary measures?

### **HYPOTHESIS**

- a. There is no significant difference between years of working experience and compliance with the standard precautionary measures.

### ***Theoretical review:***

The health promotion model (HPM) proposed by Nola J. Pender (1982, revised, 1996) was adopted for the study. It was designed to direct health protection. It defines health as a positive dynamic state rather than simply the absence of disease. Health promotion is directed at increasing patient level of wellbeing. It also has to do with the behavior motivated by the desire to increase wellbeing and actualize human potential which is an approach to wellness.

This model suggest that good health is not just the absence of any health ailment or disease, it is much beyond that, good health implies a general holistic state of wellbeing, healthy actions of an individual and a balanced, fulfilling way of life. Health promotion and disease prevention should be the primary focus in healthcare, when health promotion and prevention fails to prevent problems, then care in illness becomes the next priority. She defines 2 concepts; health promotion and health protection.

Health promotion is defined as behavior motivated by the desire to increase well-being and actualize human health potential. It is an approach to wellness. On the other hand, health protection or illness prevention is described as behaviour motivated desire to actively avoid illness, detect it early, or maintain functioning within the constraints of illness.

### ***Application of theory to the study:***

Nurses should have an advance health approaches, addressing not only the curative side but also the prevention of diseases and promotion of well-being. Nurses are expected to be adaptive. In health care settings, patient come and go, recover or expire. As this theory advocates, when nurses comply with the standard precautionary measures they are promoting patient's health condition, increasing patients wellbeing and actualizing patients potentials and also avoid illness, detect it early, or maintain functioning with the constraints of illness.

## **RESEARCH METHODOLOGY**

### **RESEARCH DESIGN**

The research design of the study was a descriptive design to determine knowledge and compliance rate with standard precautionary measures among nurses in Madonna University Teaching Hospital Elele, Rivers state.

## **AREA OF STUDY**

The study was conducted in Madonna University Teaching Hospital Elele in Ikwere, Local Government Area of River State, Nigeria. Madonna University Teaching Hospital Elele is located on the North- East of Rivers state. In the North it shares boundary with Imo state, in the South with Isiokpo, in the West with Omoku and in the East with Port Harcourt. Teaching Hospital has a working capacity of 500 staff comprising of Doctors, Nurses, Physiotherapist, Radiologist, non-medical staff, and patient capacity of 150. The hospital is made up of subunits such as medical ward, surgical ward, pediatric unit, general outpatient department (GOPD), accident and emergency (casualty), surgical outpatient department (SOPD), theatre, obstetrics and gynecology units and psychiatric unit.

## **POPULATION OF THE STUDY**

The population of the study consisted of male and female nurses in 9 different units, Medical unit, Surgical unit, Pediatrics, Casualty, Obstetrics and Gynecology unit, Psychiatric unit, GOPD, SOPD and Theatre. The total population is 102 nursing staff of Madonna University Teaching Hospital (MUTH) Elele (MUTH records). The target population for this study was made up of 102 nursing staff of various units in Madonna University Teaching Hospital. The population is represented all the cadre of nursing in the hospital.

## **SAMPLE SIZE**

The total population of nurses in Madonna University Teaching Hospital Elele which is 102 was purposely utilized for the study.

## **INCLUSION CRITERIA**

The requirement for the study included all the nurses in Madonna University Teaching Hospital, Elele, Rivers state.

## **INSTRUMENT FOR DATA COLLECTION**

The instrument for data collection was a self-structured questionnaire. Which consist four (4) sections. Section A consisted of 5 items on socio-demographic variables of respondents, Section B had 5 items eliciting information on knowledge of standard precautionary measures, and Section C consisted 4 items eliciting information on compliance with standard precautionary measures among nurses in MUTH. 102 copies of questionnaires were distributed and 92 copies were retrieved, which gave 90% return rate. The other copies were either not properly filled, not filled completely or not returned.

## **VALIDITY OF THE INSTRUMENT**

The self-structured questionnaire was validated by experts in the subject matter who confirmed the face and content validity of research instrument.

## **RELIABILITY OF THE INSTRUMENT**

Reliability of the instrument was ascertained by using test retest method, 10 copies of the questionnaire were administered to 10 staff of University of Port Harcourt Teaching Hospital, Chioba and re-administered after interval of two weeks. The data collected on the two administrations were analyzed using Spearman Rank Correlation Coefficient which yielded high correlation of 0.89 which was considered adequate for the study.

## **PROCEDURE FOR DATA COLLECTION**

The researchers recruited four research assistants after informing them about the purpose of the study. The instrument was administered directly to the respondents by the researchers and the research assistants. 102 copies of questionnaires were distributed and 92 copies were retrieved, which gave 90% return rate.

## **METHOD OF DATA ANALYSIS**

Data collected were analyzed using descriptive statistics of frequency and percentage. The hypothesis was tested with inferential statistics of chi-square test at a significance level of 0.05. The knowledge of universal Precautions was measured by examining five questions on ; the status of patients it is applicable to, the knowledge as precautionary measure to prevent occupational accidents; exposure to body fluids, use of protective barriers such as gloves and gown, recapping of needles and disposal of biohazards. Compliance was measured by examining four items on the various types of aseptic techniques and facilities used by the respondents in the health care institution, use of sharp proofs in sharp disposal and the practice of PPE in patient's care. A score of "1" for a correct answer and "0" for an incorrect answer was assigned. A health care worker who obtained a total score of "5" was considered "good knowledge;" "4 or 3" "fair knowledge;" and "1 or 0" "poor knowledge" and the same applies to compliance.

## **ETHICAL CONSIDERATION**

Consent was obtained from the ethical committee of the hospital used for the study. The purpose of the study was explained to the respondents who were also assured of the confidentiality of all information provided and respondent's anonymity maintained.

**PRESENTATION OF DATA**

Table 1: Demographic characteristics of respondents (n= 92)

S/no	VARIABLES		REQUENCY	PERCENTAGE
1.	Age	20 – 29	18	9.78
		30 – 39	50	19.56
		40 – 49	12	54.35
		50 – 59	17	13.35
		60 and above	5	5.43
2.	Sex	Female	83	90.22
		Male	9	9.78
3.	Qualification	RN only	12	13.04
		RN and RM	38	41.30
		BNSC +RN+ RM	41	44.57
		MSC nursing PHD	0 1	0 1.09
4.	Working experience	1-5yrs	47	51.09
		6-10yrs	25	27.17
		11-15yrs	20	21.74
		16-20yrs	0	0
		21-25yrs	0	0
		26 and above	0	0
5.	Ranking	NO 1	14	15.21
		NO 11	61	66.30
		SNO	7	7.60
		PNO	4	4.35
		ACNO	1	1.09
		CNO	4	4.35
		ADNS	1	1.09
		DDNS	0	0

The data distribution above shows demographic data of the respondents.

Table 2; knowledge of standard precautionary measure (n=92)

S/no	Item	Respondent	Percentage	Decision
1	Standard precautionary measures means?			
	a) Only wearing of gloves	1	1.09	
	b) Only hand washing	2	2.17	
	c) Wearing of gloves, mask, gown, shield, proper disposal of sharps after use and hand hygiene	3	96.74	#
2	Standard precaution is only applicable for the patient with the confirmed diagnosis of infection or in a latent period of infection			
	a) Yes	80	86.96	#
	b) No	12	13.04	
3	Does standard precautionary measure involve disinfecting the ward?			
	a) Yes	89	96.74	#
	b) No	3	3.26	
4	Standard precautionary measure involves adequate disposal of wastes generated from patient's care			
	a) Yes	87	94.6	#
	b) No	5	5.4	
5	Standard precaution are measures applied to prevent occupational accidents involving sharps or body fluids			
	a) Yes	88	95.7	#
	b) No	4	4.3	

**Good Knowledge = #**

The data distribution above shows the respondents knowledge of compliance with standard precautionary measures

Table 3: Areas of Compliance with standard precautionary (n=92)

S/no	Item	Respondent	Percentage	Decision
6	What type of standard precaution do you adopt in your practice?			
	a) Medical asepsis	9	9.78	
	b) Surgical asepsis	3	3.26	
	c) Both	80	86.96	#
7	I properly dispose sharps after use by discarding in sharp proof / waste bins			
	a) Always	50	54.34	*
	b) Sometimes	25	27.18	
	c) Never	17	18.48	
8	What are the equipments or facility used for standard precautionary measures in MUTH?			
	a) Protective barrier	30	32.61	
	b) Sink, sterilizer, isolation room, protective barrier	62	67.39	#
9	I adopt the use of personal protective equipment during patient's care			
	a) Always	55	59.8	#
	b) Sometimes	30	32.6	
	c) Never	7	7.6	

Good Compliance = #, fair compliance =\*

The data distribution above shows the respondents areas of compliance with standard precautionary measures

Table 4: Summary of Chi-square statistic on the relationship between years of service and compliance with the standard precautionary measures.

Years of service	Yes	No	Total	df	$\chi^2$ cal	p-value
1-5yrs	46	1	47			
6-10yrs	24	1	25	2.00	1.71	0.425
11-15yrs	19	1	20			
Total	89	3.00	92			

Table 4 showed that there is no significant relationship between years of service and compliance with the standard precautionary measures ( $\chi^2$  2, .05, p=.425). The null hypothesis was not rejected at .05 alpha level.

Ho: There is no significant relationship between years of service and compliance with the standard precautionary measures

## DISCUSSION OF FINDINGS

### Socio-demographic data:

Table 1 shows that respondents within the age of 30-39 made up the highest population 50(54.4%) followed by 20-29, 18 (19.6%) and the least were those of 60 and above 5(5.4%). The female respondents were more than the males 83(90.2%) and 9 (9.8%) respectively. Respondents with Bachelor of Nursing Science (BNSc) +Registered Nurse(RN) + Registered Midwife(RM) were more than others 41(44.7%),those with RN+RM were 38(41.4%). Respondents with 1-5 years working experience outnumbered others 47(51.1%); those of 6-10 years were 25(27.2%); 11-15 years 20(21.7%). Respondents with the rank of Nursing Officer II (NOII) were 61(66.3%);NOI, 14(15.2%); Senior Nursing Officer (SNO) 7(7.6%).

### Knowledge areas of standard precautionary measures:

Knowledge of standard precaution is an effective way of ensuring quality care. Table 2 Shows that out of 92 (100%) respondent, 89 (96.7%) have good knowledge of standard precautionary measures. This observation corresponds with other findings; Knowledge of universal precautions was highest among nurses (85.5%) compared with other health workers which they attributed to incorporation of universal precautions in the Nigerian nursing and midwife student curriculum and on-the-job training <sup>(1)</sup>; Nurses were

knowledgeable and exhibited a positive attitude towards standard precautions <sup>(12)</sup>; 90.0% of nurses had knowledge of standard precautions <sup>(13)</sup>. Better knowledge of universal precautions among HCWs was one of the correlates of good compliance <sup>(14)</sup>.

### Compliance with standard precautionary measure:

As shown in table 3, out of 92 respondents, 80 (86.96%) practice both medical and surgical asepsis of standard precaution while 9 (9.78%) practice medical asepsis and 3(3.26%) practice surgical asepsis. It shows that adequate number of them comply with standard precautionary measures. This finding is in contrast with other observations: less than two-thirds of health care workers used personal protective equipment such as aprons, gowns and gloves, during surgeries and deliveries <sup>(15)</sup>; there is sometimes a high rate of non-compliance among health workers and this may be due to a lack of understanding among them on how to properly use protective barriers <sup>(16)</sup>; in addition, Gershon,et al <sup>(14)</sup>. Observed non-compliance among health workers and that it is associated with insufficient knowledge, workload, forgetfulness, workplace safety and the insight that colleagues also failed to follow.

Non-compliance among health care workers could also be due to their belief that their workload is increased by adhering to universal precautions and therefore, these procedures are difficult to accommodate due to day to day current clinical pressures <sup>(17)</sup>. Other reasons for non-compliance include perceived reduction in dexterity when wearing gloves and the absence of penalties <sup>(3)</sup>. Availability of supplies and awareness programs increase compliance on standard precautions <sup>(13)</sup>.

## RESEARCH HYPOTHESIS

There is no significant relationship between years of service and compliance with the standard precautionary measures. The null hypothesis was not rejected at .05 alpha level. This observation is in contrast with other findings. Abdulraheem, et al<sup>(1)</sup> reported a higher level of compliance among HCWs with better knowledge of standard precautionary measures, which was observed among health care workers with longer years of experience.

## CONCLUSION

This study was to determine the knowledge and compliance with standard precautionary measures among nurses in MUTH, Elele, Rivers State. Two objectives and one hypothesis guided the study. Descriptive design was adopted for the study. The total number of nurses in MUTH was 102 which made up the sample size of the study, the main instrument used for data collection was a self-structured questionnaire, validity and reliability of the instrument were ensured, data collected were analyzed using descriptive statistics of frequency, percentage, as well as chi-square. The analysis and findings of the data were discussed and interpreted. The knowledge of respondents and their compliance with standard precautionary measures was above average. Majority of the nurses (80%) comply with both medical and surgical asepsis. Secondary and health institutions should provide equipments and facilities in the hospital to improve more on compliance with standard precautionary measures.

## RECOMMENDATIONS

Motivations such as seminars and workshops on standard precautions should be given to nurses to further encourage them to comply with standard precautionary measures.

The factors that promote compliance such as rewards should be given in order to encourage compliance also there should be measures such as penalties for the HCWs that do not comply so as to deter others from non-compliance.

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