



THE KNOWLEDGE, ATTITUDE, AND PRACTICE OF UNIVERSAL PRECAUTION AMONG RURAL PRIMARY HEALTH CARE WORKERS IN ENUGU SOUTHEAST NIGERIA.

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ABSTRACT

Background: Universal Precaution is indispensable in preventing blood borne infections, therefore adequate knowledge and optimum practice should be ensured in our healthcare facilities. There is a need to periodically assess the level of this knowledge and practice amongst the health workers. This study, therefore, assessed the level of knowledge, attitude and practice of universal precaution amongst the rural primary health care workers in Enugu State, Nigeria.

Methodology: A cross sectional descriptive study was carried out using a multistage sampling technique to select the healthcare workers. The first stage was selecting cluster of 5 LGAs out of 17 LGAs in Enugu state while the second stage was the random selection of 10 Primary Health Centres from each of the 5 selected LGAs in the

cluster. All the consenting health workers from these centres were interviewed using pretested structured self-administered questionnaire. Data was analyzed and reported using appropriate tables and charts. **Results:** The mean age (SD) of the respondents was 34 ± 2.3 . Out of the 300 healthcare workers interviewed, Only 18% had adequate knowledge, 88.3% had a positive attitude, while 19.7% exhibited optimum practice. The CHOs had better knowledge than the Nurses/Midwives, CHEWs and Orderlies, however, the Nurses/Midwives had better practice, compared to CHOs, CHEWs and Orderlies. Having undergone training in universal precaution was a significant determinant of both adequate knowledge and optimum

practice. **Conclusion.** There was low knowledge and poor practice of universal precaution resulting from poor training and inadequate supply of personal protective equipment.

KEYWORDS: Universal precaution, Enugu, primary health care.

INTRODUCTION

Health care delivery facilities emerged at different times and in different locations, reflecting the existing social and cultural contexts. These facilities mean different things to different people based on the outcome of care and satisfaction. To some, it is a place of care of ailment while to others it is a place to dread because of the infections that could possibly be acquired in the course of rendering and seeking care. Following the emergence of HIV/AIDS in early 80s, guidelines for protecting health care workers from becoming infected with HIV and other blood borne infections (HBV, HCV) were quickly developed in 1985 and they became known as Universal Precaution.^[1]

Universal precaution (UP) as defined by the CDC is a set of precautionary measures designed to prevent transmissions of Human Immunodeficiency Virus (HIV), Hepatitis B Virus (HBV), and other blood borne pathogens when providing first aid or health care services.^[2] The components include; regular hand washing before and after significant contact with patients, use of personal protective equipment such as hand gloves, impermeable gowns and plastic aprons, face masks, eye goggle, appropriate handling of sharps in the course of treating patients and proper disinfection of hospital equipment and devices with the appropriate disposal of hospital wastes.

Blood borne infections acquired during clinical and laboratory services have remained a major health issue worldwide, particularly in low income countries where there is high morbidity and mortality associated with such infections.^[1,3] These include hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV) infections and are acquired through exposure to infected blood and body fluids.^[4-6] Injuries sustained during health service delivery pose a great risk to acquiring such infections and recapping, disassembly, and inappropriate disposal of sharp increase such injuries.^[7-9]

In developing countries, where the prevalence of HIV-infected patients is the highest in the world, the number of needle stick injuries is also high and an African health care worker suffers on the average, two to four needles stick injuries per year.^[10] The risk of acquiring

these infections in these countries is accentuated by the high prevalence of blood borne infections, poor adherence to safety precautionary measures, poorly maintained health care system and negative socio-cultural factors.^[11]

In Nigeria, there are three levels of the health care system, namely; primary, secondary, and tertiary. Among the three levels of healthcare, the primary health care facilities constitute major sites for health service delivery to the vast majority of the population, and with the adoption of primary health care as the mainstay of healthcare delivery in Nigeria, there has been an expansion of Primary Health Centres (PHC) all over the country.^[11] This has consequently expanded the interface between patient-healthcare worker interactions with resultant increase in the risk of exposure to contracting blood borne infections. Regrettably, the PHCs in Nigeria are often faced with poor funding, inadequate facilities, and poor environmental factors such as absence of regular running water for safety practices. Worst hit are those located within the rural communities where, in addition, there is low staff strength serving large population with some level of negative cultural influence.^[12,13]

Despite the importance of UP in blood borne infection prevention, its practice among the health care givers has left much to be desired as reported at different levels of health care delivery.^[8,12,13] thus increasing the risk of transmission. Adherence to the principle and practice of UP is vital to prevent such infections. Most of the studies conducted in our environment have focused on the assessment of the knowledge and practice of UP among the urban health care providers in our secondary and tertiary health facilities.^[8,14,15] There is therefore the need to conduct such study among the healthcare workers at primary level of care in our rural communities where few of these workers are faced with the challenges of rendering services to a large population of people in a substandard environment, where infection acquisition and transmission might pose more serious problem.

METHODOLOGY

BACKGROUND OF THE STUDY AREA

Enugu state is one of the 36 states of the federal republic of Nigeria located in the south eastern part of the country. The state is divided into 17 Local Government Areas (LGAs). These are Aninri, Agwu, Enugu East, Enugu North, Enugu South, Ezeagu, Igbo Etiti, IgboezeNorth, Igboeze South, Isi-Uzo, NkanuEast, Nkanu West, Nsukka, Oji River, Udenu, Udi and Uzo-Uwani. Enugu state has two tertiary and many secondary and primary health institutions spread across the state. The two tertiary health institutions are, the University of

Nigeria Teaching Hospital located at Ituku/Ozalla and Enugu State University Teaching Hospital situated within Enugu metropolis.

The study was conducted in 5 out of these 17 local government areas of Enugu State. They are; Nkanu West, Nkanu East, Aninri, Awgu and Udi Local Government Areas (LGAs). Each of the LGAs has one district hospital located at their various headquarters, which provides secondary health care services, and about 20 PHCs. These PHCs are evenly distributed among the rural communities in the LGAs and they provide health care services at primary levels. The health staff strength in each of the PHCs ranges from 5 to 15 and comprises; Community Health Officers (CHO), Staff nurse/midwives, Community Health Extension Workers (CHEW), and Orderlies/Cleaners.

STUDY DESIGN

This was a cross-sectional descriptive study involving the health workers (Community Health Officers {CHO}, Community Health Extension Workers {CHEW}, Nurses/Midwives, and Ward/Clinic Orderlies in Primary Health Centers in Nkanu West, Nkanu East, Awgu, Aninri, and Udi Local Government Areas. The study was conducted from April 1, 2014 to September 30, 2014.

SAMPLING TECHNIQUE

A multistage sampling technique was used to obtain a true representative sample of the health workers in all the PHCs in the state. First stage: the 17 LGAs were divided into 3 clusters of 6, 6, and 5 based on the proximity of the LGAs. The cluster of 5 LGAs was selected by hand dipping to avoid bias. The sample frame, then became the list of all the PHCs in each of the 5 LGAs which is about 20 in number, giving a total of about 100 PHCs in the 5 LGAs. The second stage: to obtain the desired sample size, 10 PHCs were selected by simple random sampling from each of the LGA to make a total of 50 PHCs studied. All consenting health workers were interviewed in each of the selected PHCs.

SURVEY INSTRUMENT AND DATA COLLECTION

The survey instrument was a pre-tested structured self-administered questionnaire which consists of four sections as follows;. Section A sought to obtain information on socio-demographic characteristics such as age, sex, marital status, and place of residence; professional/academic qualification; and years of service. Section B explored the respondent's knowledge and source of information regarding UP against blood borne

pathogens. Section C dwelt on the respondent's opinion and attitude towards the concept of UP. Section D dealt on the practice and application of the principles of UP and hindrances to the practice of the health workers in these rural communities.

Explanation and assistance were offered to the respondents in the completion of the questionnaire when necessary by trained research assistants. These research assistants were nurses who were recruited and trained by the researcher on the basic principles of UP and the completion of the questionnaire. They were ten in number with two assigned to each of the studied LGAs.

SAMPLE SIZE DETERMINATION

The minimum sample size of 304 for the study was calculated from using standard formula.^[16] and by adding 10% attrition rate.

DATA ANALYSIS

The data were entered into a computer and analyzed using STATA 10 Version 5.5 statistical package. Data was presented in the form of tables, bar and pie-charts. Chi-square and student t tests were used for comparing variables. A p- value of 0.05 or less was considered statistically significant.

RELIABILITY AND VALIDITY OF THE STUDY

The questionnaire was pretested on 10 Primary Healthcare Workers from a health center in one of the LGAs that was not selected. This was done to check if the questions were clear and gave valid information. The questionnaires were formulated in such a way that the measure accounts for all the elements of the variables, which are knowledge, attitudes, and practices. This ensured content validity. Adequate knowledge was assessed by choosing the most appropriate option in item 4 of section B in the questionnaire which is; Measures of protecting both the patient and health workers from blood borne infection. Any other option chosen without inclusion of this option was regarded as inadequate knowledge. Also, optimum practice was assessed by selecting the most appropriate option in item 1 of section D which is; Regular hand washing, wear gloves, apron, eye goggle; avoid recapping needles and appropriate disposal of sharps. Any other option chosen without inclusion of this option was regarded as either inadequate or poor practice.

Threats to external validity were prevented as random selection of Health Care Centers was done during sampling.

ETHICAL CONSIDERATION

Ethical clearance was obtained from the health department of the five LGAs under study before the survey commenced. Verbal consent was obtained from all participating respondents and their confidentiality guaranteed by using only codes to distinguish questionnaires as against individual names. Respondents were informed that they were free to withdraw from the research at any point if they so wished.

RESULTS

A total of 304 questionnaires were administered, out of which 300 were completed and returned for analysis, giving a response rate of 98.7%. Four respondents opted out from the study. The majority of the respondents were trained Community Health Extension Workers (CHEW), 196(65.3%). The rest were Nurses/Midwives, 37(12.3%), Community Health Officers (CHO), 34(11.3%) and Ward/Clinic Orderlies, 33(11.0%). The age range of the respondents was 25 -64 with a mean age of 34 ± 2.3 as shown in table 1. Though, 77.2% of the respondents admitted to have heard of universal precaution, only 18% had adequate knowledge and sources of information varied from school/training (39%) as the major source to mass media (2%) as the least (Figure 1). The majority (80%) of the respondents perceived universal precaution as being useful and protective while only 2% felt it was not useful and 3% concluded it was time wasting, and the remaining were simply indifferent (8%). However, most (88%) of the respondents would like to practice Universal Precaution (table 2).

Only 59 respondents (19.7%) observed complete universal precaution while carrying out their duties and 268 respondents (89.3%) wear only gloves as a measure of universal precaution. About two-third (68.3%) of the respondents would drop sharps in special containers for sharps, 23.7% would drop it in the general waste basket and very few 10 (3.3%) would throw them into the bush open dumping site. The most common methods of disinfection of instruments were soaking in 10% hypochlorite solution (61.0%) and boiling (51.0%), and only 10% would autoclave. The number of respondents cleaning with Savlon and methylated spirit as a form of disinfection were 58 (19.3%) and 116 (38.7%) respectively. (Table 3).

Out of the total respondents, 244 (81%) had needle stick in the past and only about a quarter 70 (23.3%) washed the site and went for HIV screening, and less than one percent (0.7%) simply informed a doctor (Table 4). A few number of the respondents 25 (8.3%) ignored their needle stick injury and never did anything while 59 (19.7%) only washed the site and 68 (22.7%) washed the injury site and took antibiotics. Very few 31 (10.3%) accessed post exposure prophylaxis care from the nearest HIV service center following the needle stick injury.

Table 5 shows that respondents that had barriers in the practice of universal precaution because of inadequate water/ soap supply and inadequate supply of hand gloves were 62% and 82% respectively, while non provision of containers for sharps and universal precaution being too difficult to understand constitute the least barriers (about 1% each).

Having received training on UP and being CHO significantly determined the knowledge of UP. Residing in urban area and being in service for >5years led to increase knowledge but this observation was not significant.

Optimum practice was significantly highest among those who had received training on Universal Precaution ($P < 0.05$). Age group 30 -39, being nurses/midwives, having spent more than 10 years in service and living in urban led to the optimum practice, though this was not statistically significant ($p > 0.05$). Table 6.

Table 7 shows that 83.6% respondents who did not attend any training have had needle stick injuries ($p < 0.05$). Needle stick injury was also highest (93%) among the age group 40-49 and lowest among the age group 60 and above. Comparing various professions, CHEW had the highest (86.2%), while the least was reported among the Clinic/Ward Orderlies (60.6%). The respondents who dwell in the rural communities had higher cases of needle stick injury than those living in the urban areas (82.8% vs 76.1%, $p > 0.05$). The rate of needle stick injury was least among those who had spent less than 5 years in service (58.1%) and highest (91.4%) among those over 10 years in service ($p > 0.05$).

DISCUSSION

Healthcare associated infections are serious problems in the health care services as they are common causes of illness and mortality among both the patients and health care providers. Health and social care settings thus provide a challenging environment in the management of

risks associated with the transfer of micro-organisms from patient to patient or between the environment, equipment, staff and patients. Vulnerability to infectious pathogens, and the intensity and complexity of health care interventions mean that vigilance is required at all times. Prevention and management of infection are the responsibility of all staff working in health and social care, and an integral element of patient safety programs.^[3] It is applicable to all health and social care organizations, regardless of the patient setting or care provider. The different variables shall be discussed according to the various responses of the study participants.

KNOWLEDGE

Knowledge about a subject means understanding or skills gained through education or experience. This is different from awareness which is simply having information that such thing exists, but not necessarily good understanding. In this study, while 77.8% admitted having heard about UP (awareness), only 18% exhibited adequate knowledge.

The low knowledge level of 18% among the rural health workers in this study is similar to 22% found in a similar study in Nepal,^[17] but very low compared to 97% and 64% found in Nnewi.^[15] and Jamaica.^[1] respectively. The high knowledge level in these later studies could be explained by the fact that the studies were carried out among health care workers (doctors and nurses) in Teaching hospitals, in contrast to the rural communities where the present study was conducted. Moreover, the caliber of the health workers in the rural health centers who were mainly CHEWs as well as the inclusion of the ward/clinic orderlies may have contributed to the low knowledge of UP.

Professional training appears to have significant influence on the knowledge as a greater proportion of the CHOs and Nurses showed more knowledge than the CHEWs and the least knowledge was found among the ward/clinic orderlies. Doctors and Nurses have demonstrated having good knowledge of universal precaution in several studies.^[1,9,15] Training on UP was expectedly discovered in this study to increase the level of knowledge as 72% of those who had undergone some form of training on UP have adequate knowledge. This finding underscores the importance of training and may explain why nurses and CHOs who must have had more training on UP displayed more knowledge than the CHEWs and ward orderlies.

This study also found out that the respondents who resided in the urban had more knowledge about UP compared with those in the rural communities. The difference in knowledge level (though not statistically significant $p>0.05$) is not surprising as those in the urban areas are more exposed to information through mass media, friends and colleagues who work in bigger hospitals.

ATTITUDE

The attitude of the respondents towards general UP in this study was quite encouraging as majority of them (80%), though without adequate knowledge agree that universal precaution is useful and protective and 88.3% of the respondents would like to practice it. Such positive attitude of the majority of the health workers may be attributed to fear of contracting HIV infection, which most of the respondents understood UP to prevent. This is similar to Iranian study.^[18] but in contrast with studies done in Sweden.^[19] and Nigeria.^[20] where health care workers had a negative attitude towards basic preventive practices such as vaccination against HBV.

Though, the attitude in this study is positive, the practice is poor as positive attitude often times does not translate to good practice. Lack of knowledge may have contributed as well in this regard. This finding is in keeping with that of Iranian.^[21] study where positive attitude did not correlate with practice.

Among the few (11.7%) that had negative attitude towards UP in this study, the majority claimed lack of awareness and others felt the practice is time wasting or that they have natural immunity against infections. This is a clear reflection of misconception born out of ignorance, and thus underscores the need for increase in public enlightenment and training on UP.

PRACTICE

The compliance to practice of UP among the rural health workers in this study leaves much to be desired. Most respondents (89.3%) concluded that wearing of only gloves while conducting risky procedures on patients is the only way of preventing blood borne infection. Only a few would wear other protective materials such as gloves, apron, and eye goggle. Less than half of the respondents (46%) would wash hands before and after attending to a patient. This practice negates the principles of UP which emphasizes the wearing of self-protective devices and regular hand washing while caring for patients. This poses a great threat to the

health care workers, particularly those practicing in rural communities where manpower and facilities are low. Strict adherence to the principles and practice of UP is thus very vital to reduce the spread. The use of protective devices appear to be more with the nurses/midwives and CHO, and less with the CHEW and almost nonexistent with the ward/clinic orderlies. This is not surprising as it reflects the level of knowledge among the ward orderlies. The better compliance level among the urban dwellers and those who had received some training on universal precaution suggests increased awareness and knowledge among these groups of respondents than their counterparts.

Recapping of needles which is known to pose a great risk of needle stick injury was practiced by the majority (>75%) of the respondents. This is similar to findings in Ibadan.^[20] where 80.8% of health workers were said to recap needles, but twice what was reported in Abeokuta.^[12] and Benin city.^[22] It is therefore not surprising to find out in this study that needle stick injury among the respondents was very high (81.3%). More worrisome is the revelation by this study that less than 10% of these respondents that had a needle stick injury actually notified and accessed post exposure prophylaxis from HIV service center. Others merely washed the site or took antibiotics as a form of post exposure prophylaxis against blood borne infections. The CHEWs had more needle stick injury (80%) while the ward/clinic orderlies had the least (60%). This could be explained by the fact that the CHEWs who formed the majority of the respondents had more exposure to patients' care that placed them at greater risk of needle stick injury than ward/clinic orderlies who only had an accidental contact with sharps in the course of cleaning the health centers and packing and disposing hospital wastes.

This high incidence of needle stick injury, poor notification and low or lack of post exposure prophylaxis in this study have been similarly reported in several other studies in developing world.^[12,23]

The practice of basic disinfection of reusable hospital items by soaking in bleach was slightly above average (61%). The reason is not far-fetched as bleach has become popular among the healthcare workers as a disinfectant against HIV. However, there is still erroneous belief by some healthcare workers in this study that methylated spirit and savlon are very effective against all pathogens including HIV and HBV. This explains why over a third of the respondents (38.7%) and about a quarter (19.3%) would clean with only spirit or Savlon respectively. The reason why only a few respondents (9.7%) autoclaved materials in their

facilities may be due to non-availability of an autoclave in most healthcare centers. Despite the provision of puncture resistant containers for sharps in the health centers visited, nearly a third (26%) of the respondents either drop sharps in the general waste baskets or throw them into the surrounding bush. This may be due to lack of adequate knowledge about the importance of such containers with respect to prevention of needle stick injury. This may have accounted for the vulnerability of the ward and clinic orderlies to needle stick injuries.

BARRIERS TO PRACTICE OF UNIVERSAL PRECAUTION

The poor commitment of the hospital management towards provision of basic hospital amenities and personal protective devices have been found in many studies as a barrier to practicing UP ^[24,25] Similarly, in this study, poor provision of amenities such as water, electricity and lack of protective equipment were the major barriers advanced by the respondents. The majority (>80%) complained about the inadequate supply of hand gloves, over 60% reported inadequate water supply, while about half (49.7%) of the respondents reported inadequate supply of disposables such as syringes and needles. These problems have made the practice of UP among these health care workers difficult and discouraging, thus exposing both the healthcare workers and the patients to blood borne infections.

Table 1: The Socio-demographic characteristics of health workers studied.

| AGE CATEGORY | No. of participants (%) |
|-------------------------|--------------------------------|
| 20-29 | 103(34.3) |
| 30-39 | 119(39.7) |
| 40-49 | 59(19.7) |
| 50-59 | 16(5.3) |
| 60 and above | 3(1.0) |
| SEX | |
| Female | 262(87.3) |
| Male | 38(12.7) |
| RESIDENCE | |
| Rural | 233(77.7) |
| Urban | 67(22.3) |
| MARITAL STATUS | |
| Single | 94(31.3) |
| Married | 169(56.4) |
| Divorced | 9(3.0) |
| Widowed | 28(9.3) |
| YEARS OF SERVICE | |
| <5years | 74(24.7) |
| 5-10years | 121(40.3) |
| >10years | 105(35) |
| PROFESSION | |

| | |
|-----------------------|-----------|
| CHO | 34(11.3) |
| Nurses/Midwives | 37(12.3) |
| CHEW | 196(65.3) |
| Ward/Clinic Orderlies | 33(11.0) |

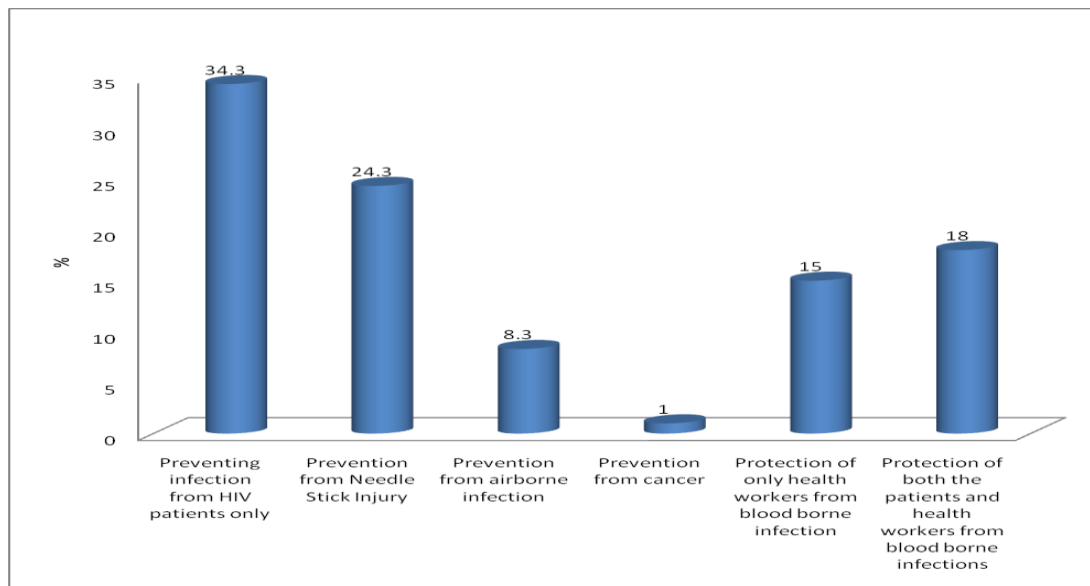


Fig. 1: Respondents knowledge of Universal Precaution.

Table 2: Attitude of the respondents towards Universal Precaution.

| | YES N(%) | NO N(%) |
|---|-------------|------------|
| Willingness to practice universal precaution | 265(88.3) | 35(11.7) |
| Reasons for unwillingness to practice universal precaution | N(%) | |
| Don't know what it is | 12(4.0) | |
| Does not make meaning | 3(1.0) | |
| Time Wasting | 10(3.3) | |
| Have immunity against infections | 10(3.3) | |

Table 3: Practice of Universal Precaution measures among health workers.

| Measures taken to avoid contacts with blood and body fluid | N(%) |
|--|-----------|
| Wear gloves | 268(89.3) |
| Regular hand washing | 137(45.7) |
| Avoid recapping needles | 73(24.3) |
| Dispose sharps | 60(20.0) |
| Wear gloves and dispose sharps | 59(19.7) |
| Regular hand washing, wear gloves, apron, eye goggle, avoid recapping needles and dispose sharps | 59(19.7) |
| Wear gloves, apron, and dispose sharps | 46(15.3) |
| Cover open wounds | 10(3.3) |

| | |
|---|-----------|
| Avoid deliveries and treating open wounds | 10(3.3) |
| Disposal of sharps | |
| Drop in special containers for sharps | 205(68.3) |
| Drop in general waste basket | 68(22.7) |
| Burn and bury them | 58(19.3) |
| Bury them | 57(19.0) |
| Throw away into surrounding bush | 10(3.3) |
| Burn them | 4(1.3) |
| Disinfection | |
| Soak in bleach | 183(61.0) |
| Boil them | 153(51.0) |
| Clean with methylated spirit | 116(38.7) |
| Clean with savlon | 58(19.3) |
| Autoclave | 29(9.7) |
| Wash with water | 20(6.7) |
| Wipe with gauze | 2(0.7) |

Table 4: Exposure to needle stick injury and actions taken among health workers.

| | Number of respondents (%) |
|--|---------------------------|
| Exposure to needle stick injury | 244(81.3) |
| Actions taken | |
| Washed site and went for HIV screening | 70(23.3) |
| Washed site and took antibiotics | 68(22.7) |
| Washed site only | 59(19.7) |
| Accessed care from the nearest HIV services center | 31(10.3) |
| Nothing | 25(8.3) |
| Informed a doctor | 2(0.7) |

Table 5: Barriers to adherence to Universal Precaution.

| Barriers | Number of respondents (%) |
|--|---------------------------|
| Inadequate supply of gloves | 245(81.7) |
| Inadequate water and soap supply | 185(61.7) |
| Inadequate supply of disposable syringes/needles | 149(49.7) |
| Inadequate or no supply of aprons, boots and eye goggles | 55(18.3) |
| No provision of containers for sharp | 40(10.3) |
| Patients are too many | 5(1.7) |
| Too difficult to understand and follow | 5(1.7) |

Table 6: Relationship between optimum practice of Universal Precaution and socio-demographic characteristics of the health workers.

| | Optimum practice | Suboptimum practice | P value |
|------------|------------------|---------------------|---------|
| Age | N(%) | N(%) | |
| 20-29 | 16(15.5) | 87(84.5) | |
| 30-39 | 28(23.5) | 91(76.5) | P>0.05 |

| | | | |
|-------------------------|----------|-----------|--------|
| 40-49 | 12(20.3) | 47(79.7) | |
| 50-59 | 3(18.8) | 13(81.3) | |
| 60 and above | 0(0) | 3(100) | |
| Profession | | | |
| CHO | 8(23.5) | 26(76.5) | |
| Nurses/Midwives | 12(32.4) | 25(67.6) | P>0.05 |
| CHEW | 39(19.9) | 157(80.1) | |
| Ward/Clinic Orderlies | 0(0) | 33(100) | |
| Residence | | | |
| Rural | 41(17.6) | 192(82.4) | |
| Urban | 18(26.9) | 49(73.1) | P>0.05 |
| Years of Service | | | |
| <5yrs | 15(20.3) | 59(79.7) | |
| 5-10yrs | 18(14.9) | 103(85.1) | |
| >10yrs | 26(24.8) | 79(75.2) | P>0.05 |
| Training | | | |
| No | 27(14.8) | 156(85.2) | |
| Yes | 32(27.4) | 85(72.6) | P<0.05 |

Table 7: Prevalence of needle stick injury by the socio-demographic (SD) characteristics of health workers.

| SD Variables | Ever had needle stick injury | | P – value |
|-------------------------|------------------------------|----------|-----------|
| | Yes | No | |
| Age | N(%) | N(%) | |
| 20-29 | 71(68.9) | 32(31.1) | P<0.000 |
| 30-39 | 103(86.6) | 16(13.4) | |
| 40-49 | 55(93.2) | 4(6.8) | |
| 50-59 | 14(87.5) | 2(12.5) | |
| 60 and above | 1(33.3) | 2(66.7) | |
| Profession | | | |
| CHO | 26(76.5) | 8(23.5) | P<0.05 |
| Nurses/Midwives | 29(78.4) | 8(21.6) | |
| CHEW | 169(86.2) | 27(13.8) | |
| Ward/Clinic Orderlies | 20(60.6) | 13(39.4) | |
| Residence | | | |
| Rural | 193(82.8) | 40(17.2) | P>0.05 |
| Urban | 51(76.1) | 16(23.9) | |
| Years of Service | | | |
| <5yrs | 43(58.1) | 31(41.9) | P>0.05 |
| 5-10yrs | 105(86.8) | 16(13.2) | |
| >10yrs | 96(91.4) | 9(8.6) | |
| Training | | | |
| No | 153(83.6) | 30(16.4) | P<0.05 |
| Yes | 91(77.8) | 26(22.2) | |

CONCLUSION AND RECOMMENDATION

The practice of UP was quite poor as a result of lack of knowledge, poor training, non-provision of basic amenities and hospital supplies. This lack of knowledge and poor implementation of UP shown in this study is reflected by the high incidence of needle stick injury and low application of post exposure prophylaxis among the healthcare workers. The study therefore recommends a system of continuing medical education and training on UP for all healthcare workers and increased government political will to provide adequate hospital amenities and personal protective equipment.

REFERENCES

1. Vaz K, McGrowder, Alexander-Lindo R, Gordon L, Brown P and Irving R. Knowledge , Awareness and Compliance with Universal Precautions among Health care workers at the University Hospital of the West Indies, Jamaica. *www.ijoom.com*. 2010; 1(4).
2. CDC Update: Universal precaution for prevention of transmission of Human Immunodeficiency Virus, Hepatitis B Virus and other blood borne pathogens in health care settings. *MMWR Morb Mortal weekly rep*. 1988; 37(24): 377-382, 87-88.
3. Lynch P, Jackson MM, Cummings MJ, Stamm WE. Rethinking the role of isolation practices in the prevention of nosocomial infections. *Ann Intern Med*. 1987; 107(2): 243-6.
4. Gerbending JL. Incidence and Prevalence of HIV, HBV, HCV and Cytomegalovirus amongst healthcare personnels at risk of blood exposure. Final report from a longitudinal study. *J inf Dis*. 1994; 170: 1410-1517.
5. Romas-Gomez F, Elison J, Greenspan D. Accidental exposure to blood and body fluids amongst healthcare workers in dental teaching clinics. A prospective study. *J. AM Dental Assoc*. 1997; 128: 1253-1261.
6. Reuben FL, Norden CW, Rockwell K. Epidemiology of accidental needle puncture wounds in hospital workers. *AM J Med sci*. 1983; 286: 26-30.
7. Press-Ustun A, Rapiti E, Hutin Y: Estimation of the global burden of disease attributable to contaminated sharps injuries among health care workers. *Am J Ind Med*. 2005; 48(6): 482-490.
8. Nwankwo TO, Aniebue UU. Percutaneous injuries and accidental blood exposure in surgical residents: Awareness and use of prophylaxis in relation to HIV. *Nigerian Journal of Clinical Practice*. 2011; 14(1): 34-37.

9. Orji EO, Fasuba OB, Onwudiegwu U. Occupational health hazards among health care workers in an obstetrics and gynaecology unit of a Nigerian Teaching Hospital. *J ObstetGynaecol.* 2002; 22: 75-78.
10. Wilburn SQ, Eijkemans G. Preventing Needlestick Injuries among Healthcare Workers. *Int J Occup Environ Health.* 2004; 10(4): 451-456.
11. Isah HO, Sabitu K, and Ibrahim MTO. Profile of institutional infrastructure for implementing universal precaution in primary health care facilities in Sokoto state, Nigeria: Implication for occupational safety. *African J of CliSSn and Exp Microbiology.* 2009; 5: 164 -174.
12. Wilson E, Sadoh MD, Adeniran O, Fawole MD. Practice of universal precaution among health workers. *J. of the NMA.* 2006; 98(5): 722 -726.
13. Janjua NZ, Razaq M, Chandir S. Poor Knowledge – Predictor of nonadherence to universal precaution for blood borne pathogen at first level care facilities in Parkistan. *BMC Infectious disease.* 2007; 10(186): 2334 -2338.
14. Aniebue PN, Aguwa EN, and Obi EI. Universal precautions: Awareness and practice of Patent Medicine Vendors in Enugu Metropolis, South East Nigeria. *Niger Med J.* 2000; 51(1): 30 -34.
15. Adinma ED, Ezeama C, Adinma JI, Asuzu MC. Knowledge and Practice of universal precautions against blood borne pathogens amongst house officers and nurses in tertiary health institutions in South East Nigeria. *Niger J Clin Practice* 2009; 12(4): 398 -402.
16. Lwanga SK and Lameshow S. Sample size determination in health studies. Geneva World Health Organisation. 1991: 25.
17. Timilshina N, Ansan MA, Dayal V. Risk of infection among primary health workers in the western development region, Nepal. Knowledge and compliance. *J infect DevCtries.* 2011; 5(1): 018 -022.
18. Askarian M, Memish ZA, Khan AA. Knowledge, Practice, and Attitude Among Iranian Nurses, Midwives and Students Regarding Standard Isolation Precautions. *Infection Control and Hospital Epidemiology.* 2007; 28(2): 284-289.
19. Dennetum E, Tegnell, Torner A, Gieeck J. Coverage of hepatitis B vaccination in Sweden health care workers, *J Hosp Infect.* 2006; 63(2): 201-204.
20. Adebamowo CA, Adukogbe AA, Ajuwon AJ. Knowledge, Attitude and Practice related to hepatitis B virus infection among Nigerian Obstetricians and Midwives. 1998; 18(6): 528 -538.

21. Askarian M, Memish ZA, Khan AA. Knowledge, Practice, and Attitude Among Iranian Nurses, Midwives and Students Regarding Standard Isolation Precautions. *Infection Control and Hospital Epidemiology*. 2007; 28(2): 284-289.
22. Ofili AN, Asuzu MC, Okojie OH. Knowledge and practice of universal precaution among nurses in central hospital Benin city Edo state, Nigeria. *Nigerian Postgrad Med J*. 2003; 10(1): 26 -31.
23. Henry K, Cambel S, Collier P, Williams CO. Compliance with universal precautions and needle handling and disposal practices among emergency department staff at community hospital. *AM J Infect control*. 1994; 22: 129-137.
24. Beekmann SE, Vlahoo D, Koziol DE. Temporal association between implementation of universal precaution and a sustained, progressive decrease in percutaneous exposure to blood. *Clin Infect Dis*. 1994; 18: 562- 569.
25. Evanoff B, Kim L, Mutha S, Jeffe D, Haase C. Compliance with universal precaution among emergency department personnel caring for trauma patients. *Ann Emerg Med*. 1999; 33: 160 -165.