Knowledge and Practice of Universal Precautions among Qualifying Medical and Nursing Students: A Case of Obafemi Awolowo University Teaching Hospitals Complex, ILE-IFE.

1Bamigboye, Abiodun P., 2Adesanya, Abidemi T.,
1Department of Community Health, Obafemi Awolowo University, Ile-Ife, Nigeria
2Obafemi Awolowo University, Teaching Hospitals Complex, Ile-Ife Nigeria.

Abstract: A study of the knowledge and practice of universal precautions was carried out among final year medical and nursing students of Obafemi Awolowo University teaching Hospitals Complex in Nigeria. A total of 129 students consisting of 103 medical and 26 nursing students took part in the study. A total of 83(64.3%) of the study population were quite familiar with the concept of universal precautions. There seem to be higher level of knowledge among nursing students (77%) than medical students (61%) in terms of awareness of basic principles of universal precautions. The level of knowledge of what constitute universal precautions was found to be low among the students. That only 38.8% of the respondents had good knowledge about such an important precautionary measure raises a lot of concern about the level of consciousness of the respondents about personal protection with respect to blood borne infections especially in a work environment where the prevalence of needle stick injury seem to be higher than what was recorded in previous study among similar population. The need to strengthen safety education as a component of the training of health workers was raised so that while caring for the sick the care providers would not get themselves infected.

Key words:

INTRODUCTION

The new wave of nosocomial infections arising from various medical settings as well as other related environment has been of much concern for some time. The fact that blood and other fluids from patients are becoming increasingly hazardous to those who provide care for them had become of great concern to public health professionals the world over. It has specifically necessitated the need for a preventive approach in protecting care providers from such infections particularly from their patients. Thus the practice of universal precautions as a way of safeguarding possible routine infections in work places had become more and more a widely accepted among various health workers.

It was in 1983, that the Centre for Disease Control (CDC) first published a document entitled Guideline for Isolation Precautions in Hospitals[1-3] that contained a section entitled "Blood and Body Fluid Precautions. The recommendations in this section called for blood and body fluid precautions when a patient was known or suspected to be infected with blood borne pathogens. In August 1987, CDC published another document entitled Recommendations for Prevention of HIV Transmission in Health-Care Settings[2-6]. In contrast to the 1983 document, the 1987 document recommended that blood and body fluid precautions be consistently used for all patients regardless of their blood borne infection status. This extension of blood and body fluid precautions to all patients is referred to as "Universal Blood and Body Fluid Precautions" or "Universal Precautions." Under universal precautions, blood and certain body fluids of all patients are considered potentially infectious for human immunodeficiency virus (HIV), hepatitis B virus (HBV) and other blood borne pathogens.

Universal precautions, as defined by CDC, are set of precautions designed to prevent transmission of Human Immunodeficiency Virus (HIV), Hepatitis B Virus (HBV) and other blood borne pathogens when providing first aid or health care. This applies to blood and to other body fluids containing visible blood[7,8] and also to vaginal secretions and semen. Although the latter have been implicated in the sexual transmission of HIV and HBV, they have not been implicated in occupational transmission from patient to health-care worker[9]. This observation is not unexpected, since exposure to semen in the usual health-care setting is limited and the routine practice of wearing gloves for performing vaginal examinations protects health-care workers from exposure to potentially infectious vaginal secretions.

Although HBV had been clearly documented as being far more infectious than HIV in occupational health care settings, many people regarded the prevention of HIV transmission as the primary rationale for the introduction of universal precautions. This was evident in publications issued by the Centers for Disease Control and Prevention[2,3,10].
Universal precautions are intended to prevent parenteral, mucous membrane and non-intact skin exposures of health-care workers to blood borne pathogens. An important aspect of these precautions is the need to wash hands after touching patients or coming in contact with fomites as well as other fluids and secretions from patients especially in an hospital setting. Personal hygiene thus becomes a fundamental principle in observing universal precautions. Immunization with HBV vaccine is recommended as an important adjunct to universal precautions for health-care workers who have exposures to blood[11-14]. Clinical applications of universal precautions are important for every health care professional that provides dental, medical, or other patient care.

All health care workers are expected to take precautions to prevent injuries caused by needles, scalpels and other sharp instruments or devices during procedures; when cleaning used instruments; during disposal of used needles; and when handling sharp instruments after procedures[15-18]. To prevent needle stick injuries, needles should not be recapped by hand, purposely bent or broken by hand, removed from disposable syringes, or otherwise manipulated by hand. After they are used, disposable syringes and needles, scalpel blades and other sharp items should be placed in puncture-resistant containers for disposal. The puncture-resistant containers should be located as close as practical to the use area. All reusable needles should be placed in a puncture-resistant container for transport to the reprocessing area.

Various studies carried out among various categories of health workers including medical students found that exposure to blood or other body fluids was about 9.3%[19-25], while similar study carried out in Ibadan[26] found a higher exposure rate of 25.1%. Various factors ranging from personal to organizational were responsible for non-adherence to the basic principles of universal precautions among health care providers[27-33]. Universal precaution awareness education has not been pronounced among health care providers especially in developing countries. Graduating/qualifying medical and nursing students are an important group of health care providers in that apart from the fact that they will upon graduation provide additional support to health care, they are also expected to inject new ideas to their practice all of which is expected to bring improvement to the service. It is therefore important to have information as regards what probable impact they are likely to have upon service provision as well as public health safety. It is with this context that this study is conducted with the aim of knowing the level of knowledge of about to qualify health personnel as regards universal precautions as well as their level of practice.

MATERIALS AND METHODS

The study was carried out among the final year medical and nursing students of Obafemi Awolowo University who more or less fully engaged in medical services provision at the university’s Teaching Hospital as trainee health personnel. They are involved in virtually every aspects of medical and nursing duties. The study took place between the months of May and July 2002. It is essentially a descriptive cross sectional study.

Since the calculated samples size of 384 was far more than the total number of students of the population of interest, all students in the final year stages of their training (medical and nursing) were included in the study. A total of 129 students comprising of 103 medical students and 26 nursing students took part in the study.

The instruments of research consisted of a set of self-administered questionnaire. A scoring of their level of awareness of basic principles of universal precautions was done based on their ability to give positive answer to some key questions. Respondents that was able to give up to 7 out of ten answers were scored very good, between 4 and 6 answers were scored fair and any responses less than 4 was scored poor. The practice of respondents was assessed based on self-reported observance of basic principles of universal precautions in clinical settings.

RESULTS AND DISCUSSIONS

The respondents were made up of 103 medical students and 23 nursing students. 83 (64.3%) of the total students were male while 46 (35.7%) were females. Most of them (96%) were single (unmarried students).

When asked to state if they were familiar with the concept of universal precautions, only a total of 83 (64.3%) students consisting of 62 (61%) medical and 21 (77%) nursing students gave a positive response. Only 38 (36.9%) of the medical students were scored very good as against 12 (46.2%) of nursing students. 11 (10.8%) and 6 (23.1%) were scored fair respectively. 44 (42.7%) of medical students had poor knowledge as against 8 (30.8%) of nursing students.

Sources of respondents knowledge of universal precautions is as presented in Table 1 below.

<table>
<thead>
<tr>
<th>Source</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical</td>
<td>38 (36.9%)</td>
</tr>
<tr>
<td>Nursing</td>
<td>12 (46.2%)</td>
</tr>
<tr>
<td>Other</td>
<td>13 (46.2%)</td>
</tr>
</tbody>
</table>

The frequency of needle stick injury among the respondents is presented in Table 2.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>38 (36.9%)</td>
</tr>
<tr>
<td>No</td>
<td>65 (61%)</td>
</tr>
</tbody>
</table>

The reported practice of various aspects of universal precautions is as presented in Table 3 below:

<table>
<thead>
<tr>
<th>Practice</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>38 (36.9%)</td>
</tr>
<tr>
<td>No</td>
<td>65 (61%)</td>
</tr>
</tbody>
</table>

The concept of universal precautions is obviously not unknown among majority of the students judging from the 64.3% that claimed had heard about it before. The level of awareness of the concept seemed to be higher among nursing (77%) than medical (61%) students.
The level of knowledge of what constitute universal precautions was equally low among the respondents. That only 50(38.8%) of the respondents had very good knowledge and 17 (13.2%) fair knowledge with a total of 67 (51.9%) of the respondents having at least a fair knowledge of what constitute universal precautions call for concern. The level of knowledge follows same pattern with whether the respondents were aware of Universal precautions or not as more nursing students had very good knowledge (46.2%) than medical students (36.9%).

However, one would expect that given the present level of job related infection rate among health workers, every potential health workers supposed to be fully aware of such concept and the strategies for self protection. It is important for about ~to qualify health workers to fully imbibe the culture of such preventive strategy before graduation so that chances of infection could be lowered among them.

From Table 1, it was obvious that the theoretical aspects of training of trainee health workers overlooked the importance of incorporating the concept of universal precautions into classroom activities as only 18.9% of the respondents claimed that it featured during their classroom sessions. However, some students seemed to be making use of the opportunity for personal studies through the reading of books and journals to make up for whatever deficiency they had in the class as a total of 26% got information about the concept from the literature. It is clear from the table that senior doctors in the hospital provided information about UP to their trainees while

senior nursing personnel did same to their own. Realizing that both nursing and medical, activities takes place most of the time together it is obvious that there was no interaction among the two cadres of trainees with respect to educating each other about preventive mechanism against hazard of blood borne and similar materials in the hospital. It is a known fact that there exist cadre barriers against hazard of blood borne and similar materials in the hospital. It is a known fact that there exist cadre barriers among different health workers in many Nigerian health settings one would expect that such barrier should not be extended to such matters bothering on safety of workers and other personnel as such integrated approach has the potential of reinforcing information and ensuring high level compliance.

The role played by display of posters and similar IEC materials was abysmally low among the respondents. Generally, the posting of such materials on strategic locations within the hospital was very limited to only a few places. Considering the importance of such materials in reminding, warning and informing health personnel as regards what they need to known and/or do, it could be more helpful if information is provided on visual aid within each ward or unit and other strategically located places within the hospital.

The prevalence of needle stick injury (Table 2) seemed to be higher among the study subject (39.8% medical students; 50% nursing and 41.8% of the total study population) as against the findings of a similar study carried out among a similar group in Florida (9.3%) and
in Ibadan (25.1%). With this higher observed risk and with the low level of awareness and practice of basic precautions, the likelihood of infection could be predictably higher. The need to embark on actions aimed at ensuring protection of health personnel thus become very apparent so as to limit chances of infection.

The level of personal hygiene and related practices seem to be low among the respondents as evident from table 3. While wearing of ward coat is more or less a norm among doctors/medical students, it is not compulsory for nurses. However, practice of regular hand washing after touching patience is higher among nurses (53.8%) than medical personnel (37.9%). The practice after removing hand gloves is also higher among the nurses (57.7%) than among medical students (26.2%). Hand washing practices after exposure of hands to possible sources of contamination has been known to be a major precautionary measure against many communicable diseases. This is expected to be observed at all times especially among clinical practitioners in view of the nature of the biological environment in which they work. The fact that substantial proportion of the respondents observes these practices occasionally calls for concern as it will be very difficult for them to adequately encourage their clients to regularly observe same if they do not have a regular practice of same.

About half of the respondents will always recap used needles. The is expected to be higher as recapping of needles is one of the important principles of universal precautions which every health worker must practice. While all nursing students will at least occasionally recap used needles, not all medical students do same as about 8% were not sure they did. This fact also reinforces the fact the awareness about universal precaution seem to be higher among nursing students than medical students.

**Conclusion:** It could be inferred from this study that the level of awareness of universal precautions among the study population is very low. This low level of awareness which may be due to many factors is however related to the fact that the concept had not been very prominent in classroom teaching and related settings. Inter-cadre interaction by way of sharing safety information is also evidently poor and thus the opportunity of using various approach to safety awareness and education had not been maximized. Knowledge and practice is observed to be higher among nursing students than medical students and the reasons foe this development may have to be unraveled. However, it is important that safety awareness and education is strengthened among the study population so as to ensure their safety when in full professional practice.

### REFERENCES

9. CDC., Recommendations for providing dialysis treatment to patients infected with human T-lymphotropic virus type III/lymphadenopathy-associated virus infection. MMWR., 35: 376-8, 383.
32. CDC., 1987. Recommendations for Prevention of HIV Transmission in Health-Care Settings. MMWR 36: SU. 02); 001