

Assessment of the Level of Knowledge and Awareness towards Universal Precautions among Surgeons' at King Abdul-Aziz University-Saudi Arabia

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Abstract: ***Background:** Compliance with policies and procedures of universal precautions need to be highly valued and practices by all the health care practitioners, though decisive staff development in the prevention and transmission infectious diseases. **Objective:** To assess knowledge and awareness towards universal precautions among surgeons at the King Abdul-Aziz University-Saudi Arabia. **Method:** A cross-sectional survey was conducted at King Abdul Aziz University Hospital, Saudi Arabia. A 28item self-administered questionnaire was provided to 150 surgeons in the research setting based on their area of their surgical specialties to assess their level of knowledge and awareness towards universal precautions. **Results:** The majority of the participants were showed a high Level of adherence towards protective equipments (86.0%) ** which represent highly significance differences (P<0.0001). More than half (57.0%) of the respondents were very knowledgeable of universal precautions with statistically significantly difference (P<001). While, approximately more than one third of the participants (40.0%) were not knowledgeable of universal precautions Furthermore, majority of the participants (78.7%)** which revealed a highly statistically significantly difference (P<0001) were replied that they were adequacy of protective equipments within the current research setting. Concerning the assessment for the level of awareness towards universal precautions the current study results showed that majority of the participants were showed a high level of awareness towards universal precautions (86.0%) ** which represent highly significance differences (P<0.0001). **Conclusions:** The current study results revealed that there were a high levels of knowledge and awareness among surgeons' towards universal precautions within the study setting.*

Keywords: Surgeons; Knowledge; Awareness; Provisions of Protective Equipments & Universal precautions

1. Introduction

Standard precautions are meant to reduce the risk of transmission of blood borne and other pathogens from both recognized and unrecognized sources. They are the basic level of infection control precautions which are to be used, as a minimum, in the care of all patients. (Siegel et al., 2007). According to National Communicable Disease Center, universal precautions is designed to prevent the transmission of blood borne diseases such as human immune deficiency virus, hepatitis B, and other blood borne pathogens when first aid or health care is provided. Under Universal Precautions, blood and certain body fluids of all patients are considered potentially infectious. Universal Precautions were initially developed in 1987 by the Centers for Disease Control and Prevention in the United States and in 1989 by the Bureau of Communicable Disease Epidemiology in Canada. The Precautions include specific recommendations for use of gloves, gowns, masks, and protective eyewear when contact with blood or body secretions containing blood is anticipated. (Al-Saigul, Fontaine, Haddad, 2002) Health care workers in particular surgeons' are at risk of acquiring infection through professional exposure to infectious

diseases. The minority studies have reported on surgeons' adherence towards universal precautions and reported lack of adequate practices in relation to compliance towards the personnel protective equipments. (Janjua, et al., 2007).

Exposure to particular health hazards are expected to influence definite high-risk for all the health care providers. All the health care workers especially the medical staff who are working in surgical units and Operation Theater are more required to have a reason of a better understanding in adherence with PPE usage which is significant as it provides an assessment of the efficacy of accessible preventative strategies. This could then assist to recognize the preventive variables which are likely to improve the compliance and decrease the risk of infection transmission. Then, it is possible to integrate these preventative approaches into the strategies of health care setting. (Colodner, et al., 2003 & Taneja, ., 2010)

Universal precaution is the only approach so that all these infections could be prevented. Inadequate experience of surgeons in performing invasive procedures, they are at particular risk of exposure to blood-borne pathogens (Chopra, et al., 2008). Surgeons' should have reasonable knowledge and performance in relation to adherence to personnel protective equipments. Additionally, Elliott et al.

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(2005), reported that dedicated training must be conducted before a surgeons caring for any patient procedure particularly the ones concerning sharp devices. Physicians' compliance towards the personnel protective equipments has been reported to be with low rate. (Jawaid, Iqbal & Shahbaz, 2009).

Hazards caused by non adherence to universal precautions by the health care providers, statistics reported by the Central Register of Occupational Diseases in Poland indicates that among 314 new cases of occupational diseases in HCWs in 2005, HBV and HCV represented 42.6% of all cases.⁹ Despite the substantial reduction in HBV infection since vaccination was introduced in 1989, the incidence of HCV hepatitis in Poland is still on the increase in this occupational group. (Wacawik, siorowski & Inglot, (2003) & Wilczyn, et al., (2005).

Universal precaution consciousness education has not been prominent among health care workers especially the category of surgeons, particularly in developing countries. To the best of our knowledge, the awareness and standardized practices with universal precautions among surgeons. We, therefore, conducted this study to assess the levels of knowledge and awareness towards universal precautions among surgeons during their duties at the University Hospital of the King Abdul-Aziz University, Saudi Arabia.

2. Participants and Methods

This study was conducted in December, 2016 at the University Hospital of the King Abdul-Aziz University hospital (KAUH), Makkha. The study was granted ethical approval by the King Abdul-Aziz University Hospital Committee.

King Abdul-Aziz university hospital is the major teaching hospital, with approximately 450 beds. It provides services in community health, surgery, obstetrics and gynecology, pediatrics, psychiatry and general services. The number of sample size was 150 surgeons were recruited for the study. The participants were selected from the Departments of Surgery, Intensive Care, and O.R at KAUH. After signing an informed written consent form, the questionnaire was given to each participant. Before administration of the questionnaire, the purpose of the study was explained to each respondent and confidentiality of the information assured.

The research was carried out by one of the authors who were appropriately trained in administering the informed consent and the self-report questionnaire to the health care workers. In this cross-sectional study, a structured questionnaire prepared by the authors, was administered to the participants. A 28-item self-administered structured questionnaire about knowledge and awareness of universal precautions in the health care system was devised de novo and tested. It included a full range of response options, designed to identify the practitioner's level of knowledge and awareness towards universal precautions in the selected setting. Prior to distribution of the questionnaire, a pilot study was done on a selective group of health care workers

who were asked to fill out the questionnaire and return it back with their comments and criticism. Minor changes were then made to the final instrument.

The initial part of the questionnaire consisted of demographic information such as occupation, age, gender, and the marital status. The second part of the questionnaire comprised of questions regarding their knowledge and awareness of universal precautions. This part also assessed awareness of policies regarding universal precautions, availability of protective equipments and measure how they value the use of protective equipments. It took approximately 15 minutes to complete each questionnaire.

The participants' results concerning the assessment of the levels of knowledge & awareness towards universal precaution, there were three levels for answers high level, medium level and high level. The level of knowledge towards universal precautions by examining questions about: use of protective barriers such as gloves and gown, mask and protective goggles.

The personal protective equipments required by the health care worker include N95 mask, surgical mask, paper mask, protective goggles, gowns, gloves, and hair cover, among other equipments. These vary depending on the duty performed by the health care provider. If less than half of the personal protective equipment identified by the particular health care worker was provided, then provision was considered "inadequate." If more than half of the protective equipment identified by the participants was provided, then provision was considered "adequate."

The data were coded and analyzed by SPSS[®] for Windows[®] ver. 12.0. Strict confidentiality was maintained. All the data were stored in computers at a secured location, with access provided only to the researchers involved in the study. The χ^2 test was used to test association between categorical variables. A p value <0.05 (two-tailed) was considered statistically significant

3. Results

Table 1: Demographic characteristics of the studied sample

Variables	N (%)
Gender	
Male	75 (50.0%)
Female	75 (50.0%)
Marital status	
Married	70 (46.7%)
Single	60 (40.0%)
Divorced/Separated	15 (10.0%)
Other	5 (3.3%)
Age group (yrs)	
17–29	36 (24.0%)
30–39	82 (54.7%)
40 – 60 years	32 (22.0%)

Table 1 presents demographic characteristics of the studied sample. The sample consisted of 150 respondents—(50.0%) were females & (50.0%) were male surgeons, (46.7%) among the studied sample were married while, (40.0%) were

singles. Majority of the participants (54.7%) were from 30 to 39 years old.

Table 2: Percentage of the levels of Knowledge & Awareness Towards universal precaution

Levels of Knowledge & Awareness Towards universal precaution	Low level	Medium Level	High Level
Adherence towards Protective equipments	11 (7.3%)	10 (6.7%)	129 (86.0%)**
Knowledge of universal precaution	60 (40.0%)	5 (3.4%)	85(57.0%)*
Provision of protective equipments	18 (12.0%)	14 (9.3%)	118 (78.7%)**
Level of awareness towards universal precaution	23 (15.3%)	7 (4.7%)	120 (80.0%)**
Significantly different: **p<0.0001; *p<0.01			

Table 2 showed that majority of the participants were showed a high Level of adherence towards protective equipments (86.0%) ** which represent highly significance differences (P<0.0001). The findings also revealed that more than half of the participants were showed a high Level of knowledge towards universal precaution (57.0%)* which represent significance differences (P<0.001). On the other hand, the study results reflected that around third of the participants (40.0%) had low level of knowledge towards universal precautions. Furthermore the study results revealed that majority of the participants(78.7%)** were showed that there was a high level concerning the adequacy in relation to the provision of protective equipments which represent highly significance differences (P<0.0001). Concerning the assessment for the level of awareness towards universal precautions the current study results showed that majority of the participants were showed a high level of awareness towards universal precautions (86.0%) ** which represent highly significance differences (P<0.0001).

4. Discussion

The current study findings represent that majority of the participants were showed a high Level of adherence towards protective equipments (86.0%) ** which represent highly significance differences (P<0.0001). This results consistent with the study results carried out by Sadoh, et al, (2006) who reported that more than two third of his study sample had a high level of compliance in relation to protective equipments. Moreover, these study results is congruent with the study findings of Odujirin, Adegoke & Clin (2013) , which revealed that , reported frequent use of protective gears such as gloves, eyewear, masks and aprons. More women than men reported using protective gears most times with significantly more nurses reported frequent use followed by medical technologists and medical doctors. Although , this study results is incongruent with the study results of According to Jawaid, Iqbal & Shahbaz , (2009) who reported that among medical doctors working in a tertiary care hospital in Pakistan, compliance for hand washing was 86%, for wearing gloves was 79%, masks 46%, eye goggles 25% and for using gowns/plastic aprons was 45%.35 However, there is sometimes a high rate of non-compliance among health care workers and this may be due

to a lack of understanding among health care workers of how to properly use protective barriers. Although, according to Danchaivijitr, Tantiwatanapaiboon & Chokloikaew (2005), who found that the use of personal protective equipment was somewhat favorable, the concern among most of the health care workers, particularly the porters, was that the provision of protective gears was inadequate which will interfere with the health care providers to provide personal protective equipment and the appropriate training for the correct use. Furthermore, improvement in safety equipment is needed to better protect health care workers from exposure to blood-borne pathogens.

Furthermore the study results revealed that majority of the participants(78.7%)** were showed that there was a high level concerning the adequacy in relation to the provision of protective equipments which represent highly significance differences (P<0.0001).According the standards , policies & procedures of infection control , recommendations for protection against viral hepatitis(1985), and the recommendations for preventing transmission of infection with human T-lymphotropic virus type III/lymphadenopathy-associated virus in the workplace(1985), it was stated that availability of supplies and awareness programs for these standard precautions are among the main rules and regulations for better compliance.

The findings also revealed that more than half of the participants were showed a high Level of knowledge towards universal precaution (57.0%)* which represent significance differences (P<0.001). On the other hand, the study results reflected that around third of the participants (40.0%) had low level of knowledge towards universal precautions. These results congruent with the study results carried out by Pruss, Rapiti & Hutin (2005), who concluded that respondents who were had a high level of knowledge towards universal precautions. As well as the current study finding is congruent the study results carried out by Olowu, Oluaje, Kehinde (2001) who assessed the level of Knowledge and practice of universal precautions among final year medical and dental students in the University College of Ibadan. Dokita , their study results showed that 48% had never worn gloves, 20.9% wore gloves for “most of the time” to “always,” 75.9% had never used aprons in procedures where there was risk of blood or other body fluid splash and 59.3% always recapped the needle after use.

In this study, Concerning the assessment for the level of awareness towards universal precautions the current study results showed that majority of the participants were showed a high level of awareness towards universal precautions (86.0%) ** which represent highly significance differences (P<0.0001). These results congruent with the study results carried out by Beltrami (2000) and the study done by Wang, Chen & Liu (2010), who concluded that respondents who were had a high level of awareness towards universal precautions. Furthermore, theses study results consistent with the findings reported by Orji (2002), who concluded that non-compliance among medical doctors and nurses are associated with insufficient knowledge, workload, forgetfulness, workplace safety and the insight that colleagues also failed to follow.

5. Summary

The current study results present demographic characteristics of the studied sample. The sample consisted of 150 respondents—(50.0%) were females & (50.0%) were male surgeons, (46.7%) among the studied sample were married while, (40.0%) were singles. Majority of the participants (54.7%) were from 30 to 39 years old. Furthermore, the current study findings showed that majority of the participants were showed a high Level of adherence towards protective equipments (86.0%) ** which represent highly significance differences ($P < 0.0001$). The findings also revealed that more than half of the participants were showed a high Level of knowledge towards universal precaution (57.0%)* which represent significance differences ($P < 0.001$). On the other hand, the study results reflected that around third of the participants (40.0%) had low level of knowledge towards universal precautions. Furthermore the study results revealed that majority of the participants(78.7%)** were showed that there was a high level concerning the adequacy in relation to the provision of protective equipments which represent highly significance differences ($P < 0.0001$). Concerning the assessment for the level of awareness towards universal precautions the current study results showed that majority of the participants were showed a high level of awareness towards universal precautions (86.0%) ** which represent highly significance differences ($P < 0.0001$). These findings suggest the importance of staff development and training to the health care workers to increase their knowledge and awareness towards universal precautions which will consequently improve their utilization of universal precautions

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