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Evaluation of the Level of Knowledge of Family Medicine Staff about Universal Precaution at Selected Medical Units, Saudi Arabia

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Abstract: ***Background**: Awareness of Family Medicine about Universal Precaution requires being highly valued and practices by all the health care practitioners, despite the fact that decisive staff development in the prevention of Post Operative infection. **Objective**: To Evaluation of Knowledge of Family Medicine about Universal Precaution among Family Medicine at the Selected Medical Units-Saudi Arabia. **Method**: A cross-sectional survey was conducted at the Selected Medical Units-Saudi Arabia. . Tool was consists of 16 items self-administered questionnaire was provided to 200 Family Medicine in the research setting based on their area of their specialties to assess their level of evaluation of Knowledge of Family Medicine about Personal Protective Equipments. **Results**: The findings of the current study showed than more than two third (90.4%)*of the respondents were very knowledgeable of Universal Precaution with statistically significantly difference in relation to the aspect of knowledge about (PPE).Moreover, it was found that Female Family Medicine Staff ' had higher level of knowledgeable of Personnel Protective Equipments(89.3%)than males (52.3%). Furthermore, majority of the participants (82.4%) replied that they were adequacy of protective equipments within the current research setting. Majority of participants (83.2%) reported that they were positively in relation to value of adherence towards personnel protective equipments. **Conclusions**: The current study results revealed that there were a high levels of knowledge among Family Medicine Staff' towards Universal Precaution within the study setting.*

Keywords: Universal Precaution; Family Medicine Staff; Knowledge; Awareness &Values

1. Introduction

Previously published guidelines are available that provide comprehensive recommendations for detecting and preventing healthcare-associated infections (HAIs). The intent of this document is to highlight practical recommendations in a concise format designed to assist acute care hospitals in implementing and prioritizing their surgical site infection (SSI) prevention efforts. This document updates —Strategies to Prevent Surgical Site Infections in Acute Care Hospitals published in 2008.

Universal Precaution 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 eye wear when contact with blood or body secretions containing blood is anticipated. (Christian, et al., 2004)

Health care workers in particular Family Medicine Staff ' is at risk of acquiring infection through professional exposure to infectious diseases. The minority studies have reported on Family Medicine Staff' adherence towards Personnel Protective Equipments and reported lack of adequate practices in relation to compliance towards the personnel protective equipments. (Peiris, et al., 2003).

Disclosure to particular health hazards are expected to influence definite high-risk for all the health care providers. All the health care workers especially the Family Medicine who are working in Medical 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. (Loeb, et al., 2004 & Ofner, et al., 2003)

Universal Precaution is the only approach so that all these infections could be prevented. Inadequate experience of Family Medicine in performing invasive procedures, they are at particular risk of exposure to blood-borne pathogens (Chopra, et al., 2008). Family Medicine Staff ' should have reasonable knowledge and performance in relation to adherence to personnel protective equipments. Additionally, Low & McGeer (2003), reported that dedicated training must be conducted before a Family Medicine caring for any patient procedure particularly the ones concerning sharp devices. Physicians' compliance towards the Universal Precaution has been reported to be with low rate. (Spring, 2007).

Hazards caused by non adherence to Universal Precaution 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. . Chaovavanich, et al., (2004) & Siegel, et al., (2007).

Universal Precaution consciousness education has not been prominent among health care workers especially the category of Family Medicine Staff , particularly in developing countries. To the best of our knowledge and standardized practices with PPE among Family Medicine Staff . We, therefore, conducted this study to assess the levels of knowledge towards Universal Precaution among Family Medicine during their duties at the Selected Selected Medical Units, Saudi Arabia.

2. Participants and Methods

The participants were selected from the Family Medicine at selected Medical Units. 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 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. 16-itemes self-administered structured questionnaire about knowledge and awareness of Universal Precaution in the health care system was devised de novo and tested. It included a full range of response options, designed to identify the dental restoratives' level of knowledge towards Universal Precaution 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 dental restoratives' level of knowledge towards Universal Precaution in the selected setting.. This part also assessed awareness of policies regarding universal precautions, availability of protective equipments and measures how they value the use of protective equipments. It took approximately 15 minutes to complete each questionnaire.

The level of knowledge towards Universal Precaution by examining questions about: use of protective barriers such as gloves and gown, mask and protective goggles. A score of —1" was assigned for a correct answer and "0" for an incorrect answer. A health care worker who obtained a total score of "5" was considered —very knowledgeable;" —4 or 3" —somewhat knowledgeable;" and —1 or 0" —not knowledgeable."

The Universal Precaution 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: Percentage of the Level of Knowledge of Family Medicine about Universal Precaution at Selected Medical Units, Saudi Arabia

Level of Knowledge of Family Medicine about Universal Precaution (%) Variable			
	Not	Somewhat	Very
Senior management is responsible for ensuring that the healthcare system supports an infection prevention and control (IPC) program that effectively prevents healthcare-associated infections (HAIs) and the transmission of epidemiologically important pathogens			
Senior management is accountable for ensuring that an adequate number of trained personnel are assigned to the IPC program and adequate staffing of other departments that play a key role in HAI prevention (eg, environmental services)	11 (6.1%)	5 (3.4%)	179 (90.5%)*
Direct healthcare providers (such as physicians, nurses, aides, and therapists) and ancillary personnel (such as environmental service and equipment processing personnel) are responsible for ensuring that appropriate IPC practices are used at all times (including hand hygiene, standard and isolation precautions, and cleaning and disinfection of equipment and the environment)	7 (3.5%)	20 (10.0%)	173 (89.3%)
PC leadership is responsible for ensuring that an active program to identify HAIs is implemented, that HAI data are analyzed and regularly provided to those who can use the information to improve the quality of care (eg, unit staff, clinicians, and hospital administrators), and that evidence-based practices are incorporated into the program	5(2.5%)	30 (4.7%)	165 (43.3%)
Senior and unit leaders are accountable for ensuring that appropriate training and educational programs to prevent HAIs are developed and provided to personnel, patients, and families	7 (3.5%)	20 (10.0%)	173 (89.3%)
Senior management is accountable for ensuring that healthcare personnel, including licensed	5 (2.5%)	20 (10.0%)	169 (83.1%)

and no licensed personnel, are adequately trained and competent to perform their job responsibilities			
Adequate	7 (3.5%)	20 (10.0%)	173 (89.3%)
Personnel from the IPC program, the laboratory, and information technology departments are responsible for ensuring that systems are in place to support the surveillance program	4 (2.0%)	16 (8.0%)	180 (80.0%)*
Significantly different: *p<0.0001; †p<0.01			

The level of awareness of Universal Precaution was significantly associated with many variables (Table .1). The findings of the current study showed than more than two third (90.4%)*of the respondents were very knowledgeable of Universal Precaution with statistically significantly difference in relation to the aspect of knowledge about (PPE).Moreover, it was found that Female Family Medicine Staff ' had higher level of knowledgeable of Personnel Protective Equipments(89.3%)than males (52.3%). Furthermore, majority of the participants (82.4%) replied that they were adequacy of protective equipments within the current research setting. Majority of participants (83.2%) reported that they were positively in relation to value of adherence towards personnel protective equipments.

4. Discussion

The findings of the current study showed than more than two third (90.4%)*of the respondents were very knowledgeable of Universal Precaution with statistically significantly difference in relation to the aspect of knowledge about (PPE).Moreover, it was found that Female Family Medicine Staff ' had higher level of knowledgeable of Personnel Protective Equipments(89.3%)than males (52.3%). Furthermore, majority of the participants (82.4%) replied that they were adequacy of protective equipments within the current research setting. Majority of participants (83.2%) reported that they were positively in relation to value of adherence towards personnel protective equipments.

Our survey found gaps in knowledge and adherence with recommended PPE use for influenza control across all types of dental staff with restorative specialty. This multi professional survey had a high overall response rate (91.5%) and included respondents at the study setting. Significant variability in adherence was seen across the participants' knowledge toward the use of PPE. Conviction that PPE adherence was inconvenient was associated with decreased odds of self-reported high adherence. However, perception
that a supervisor would reprimand non adherence significantly increased the odds of self-reported adherence.

Despite the fact that infection prevention and control practices can significantly improve patient outcomes at Selected Medical Units adherence with these practices is generally high. In our survey of dental staff with restorative specialty, majority of the participants (87.5%) replied that they were adequacy of protective equipments within the current research setting. Majority of participants (80%) reported that they were positively in relation to value of adherence towards personnel protective equipments.

This self-reported adherence rate likely overestimates actual adherence. Henry et al, (2012) demonstrated that point estimates of self-reported adherence with all barrier precautions with the exception of gloves. Furthermore, the current study findings is consistent wth the reported results of the study carried out by, O'Boyle et al.,(2011) found that the correlation between reported and observed adherence with hand-washing recommendations among dentists was quite low (*r* _ .22). To overcome this overestimation, respondent reports regarding their colleagues adherence with expected practices have been used as a surrogate measure for actual adherence .toward PPE. Using this measure, we would estimate that adherence in our study is approximately 47%. The fact that (80%) of respondents felt they could improve their use of PPE confirms that they were aware that their adherence is suboptimal.

Little is known about how HCWs are currently using recommended barrier precautions to prevent spread of influenza and other respiratory viruses, or the factors that influence adherence. Identified influences on adherence to best practice guidelines have included knowledge, attitude, belief, and behavioral factors *Predictors of PPE use* Knowledge of correct PPE, age, and race were not significantly associated with reported PPE adherence in simple logistic regression (Table 1). Professional role, marital status, and specific beliefs about PPE use and efficacy were found to be significant predictors of high levels of adherence with PPE in both simple and multivariable logistic regression analyses.

Eighty percent of respondents reported a belief that PPE use would protect them and their patients, respectively, from getting influenza. Although this belief is plausible, given Centers for Disease Control and Prevention recommendations for PPE use, as we have mentioned, it is not supported by evidence from randomized clinical trials. Further, neither did this belief seem to influence behavior nor did it translate to similarly high levels of knowledge regarding recommendations. In fact, a large proportion of our respondents also demonstrated important knowledge gaps. This current study findings s congruent with the results carried out by Sandrock & Stollenwerk (2008) , who reported that , more than 75% of respondents were unable to identify the group of precautions expected to confer appropriate protection from infection transmission of influenza. This knowledge gap suggests that some dentists may be unaware that they are inadequately protecting themselves and their patients. At least half of our respondents reported that complying with recommended PPE was inconvenient. Inconvenience, in turn, was predictive of poorer adherence.

5. Acknowledgements

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6. Conflicts of Interest

None declared.

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