

# Perspectives of Endodontic Staff towards Deployment of Aseptic Techniques at Selected Dental Clinics, Saudi Arabia

Dr. Khaled Ahmed Saeed Bafail<sup>1</sup>, Dr. Naser Sameer Abdeen Sindi<sup>2</sup>, DR. Faisal Mohammed J Alrefaei<sup>3</sup>

<sup>1</sup>Resident Dentists, Second Doga Primary Health Care, Saudi Arabia

<sup>2</sup>Resident Dentists, Yanbu General Hospital, Saudi Arabia

<sup>3</sup>Dental Intern, King Abdul-Aziz University, Saudi Arabia

**Abstract:** ***Background:** Perspectives of Endodontic Staff towards Deployment of Aseptic Techniques at Selected Dental Clinics, Saudi Arabia, dictate creature exceptionally esteemed and enhance practice by all the health care specialists, although the certainty that dominant staff enhancement in the maintaining universal precaution. **Objective:** Perspectives of Endodontic Staff towards deployment of Aseptic Techniques at Selected Dental Clinics, Saudi Arabia. **Method:** A cross-sectional survey was conducted at the Selected Dental Clinics-Saudi Arabia. The assessment tool was consists of 21 items self-administered questionnaire was provided to 150 Endodontic staff in the research setting based on their area of their specialties to assess their level of evaluation of perspectives of endodontic staff towards deployment of aseptic techniques. **Results:** The results of the current research showed the level of deployment of Principles of aseptic techniques was significantly associated with many variables (Table.1). The findings of the current research showed that more than two third (79.0%)\*of the respondents were had a high level of deployment of principles of aseptic techniques with statistically significantly difference. Furthermore, it was found that endodontic staff had high level of perspectives (78.5%) for ensuring that healthcare personnel. Preponderance of the participants (89.2%) laboratory and information technology departments are accountable for ensuring that systems are in place to sustain the surveillance program of maintaining deployment of aseptic techniques. **Conclusions:** The current research results revealed that there were high levels of perspectives of endodontic staff toward deployment of aseptic techniques within the study setting.*

**Keywords:** Deployment, Aseptic Techniques & Universal Persuasion

## 1. Introduction

The target of this document is to emphasize practical recommendations in a concise format designed to (UP) at acute care hospitals in implementing and prioritizing their Principles of prevention efforts.

Document updates “Practicing to deploy the principles of aseptic techniques in dental arena, published in 2008.

Deployment of aseptic techniques was originally developed in 1987 by the Centers for Disease Control and Prevention in the United States and in 1989.

Specific recommendations for use of gloves, gowns, masks, and protective eyewear when contact with blood or body secretions containing blood is anticipated. (Christian, et al., 2004)

Acquiring infection through personal exposure to infectious diseases. The minority studies have reported on Dental staff adherence towards Personnel Protective Equipments and reported lack of adequate practices in relation to compliance towards the personnel protective equipments.(Della , et al., 2003).

Health hazards are expected to influence definite high-risk for all the health care providers. Endodontic staff who are working in Dental 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 assemble preventative strategies.

This could then (UP) at to recognize the preventive variables which are likely to improve the compliance and decrease the risk of infection. Then, it is able to integrate these preventative approaches into the strategies of health care setting. (Loeb, et al., 2004 & Ofner, et al., 2003)

Philosophy of Infection Control are the only approach so that all these infections could be prevented. Inadequate experience of Endodontic staff in performing invasive procedures, they are at particular risk of exposure to blood-borne pathogens (Chopra, et al., 2008). Dental staff should have reasonable Judgment and performance in relation to adherence to personnel protective equipments.

Additionally, Low & McGeer (2003), reported that dedicated training must be conducted before a Endodontic staff caring for any patient procedure particularly the ones concerning sharp devices. Physicians’ compliance towards the Principles of Infection Control has been reported to be with low rate. (Spring, 2007).

Non adherence to Principles of Infection Control 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. 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).

Moreover, Principles of Infection Control consciousness education has not been prominent among health care workers especially the category of Dental staff, particularly in developing countries. To the best of our Judgment and standardized practices with PPE among Dental staff. Therefore, conducted this study to assess the levels of Judgment towards Principles of Infection Control among Endodontic staff during their duties at the Selected Dental Clinics, Saudi Arabia.

## 2. Participants and Methods

Participants were selected from the Endodontic staff at Selected Dental Clinics. 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.

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-items self-administered structured questionnaire about Judgment and Judgment of Principles of Infection Control in the health care system was devised.

It included a full range of response options, designed to identify the dental restoratives' level of Judgment towards Principles of Infection Control 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. Preliminary 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 Judgment dental restoratives' level of Judgment towards Principles of Infection Control in the selected setting.

This part also assessed Judgment 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 aware towards Principles of Infection Control by examining questions about: use of protective barriers such as gloves and gown, mask and protective goggles. A score of "1" was (UP) for a correct answer and "0" for an incorrect answer. A health care worker who obtained a total score of "5" was considered "very Judgment able;" "4 or 3" "somewhat aware;" and "1 or 0" "not Judgment able."

The Principles of Infection Control required by the health care worker include N95 mask, Dental mask, paper mask, protective goggles, gowns & gloves 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  $\chi^2$  test was used to test association between categorical variables. A p value <0.05 (two-tailed) was considered statistically significant

## 3. Results

**Table 1:** Perspective of Endodontic Staff towards Deployment of Aseptic Techniques' at Selected Dental Clinics, Saudi Arabia

Perspective of Endodontic Staff towards Deployment of Aseptic Techniques			
	Not Aware	Somewhat Aware	Very Aware
Effectively prevents healthcare-associated infections ((UP)s) and of epidemiologically important pathogens			
Accountability for ensuring that an adequate number of trained personnel to avoid deployment of aseptic procedures	71 (61.0%)	9 (3.4%)	20(23.0%)*
Hand hygiene, standard and isolation precautions, and cleaning and disinfection of equipment and the environment	24 (15.3%)	6(5.2%)	70(86.0%) **
Identify is implemented, that (UP) data are analyzed and regularly provided to those who can use the information to improve the quality of care and that evidence-based practices are incorporated into the program	16 (12.0%)	12 (9.6%)	124 (83.2%) **
Leading and unit leaders are accountable for ensuring that appropriate training and educational programs to prevent (UP) are developed and provided to personnel, patients, and families	11 (4.4%)	15 (11.0%)	184 (86.3%)
Higher-ranking management is accountable for ensuring that healthcare personnel, including licensed and no licensed personnel, are adequately trained and competent to perform their job responsibilities towards Dental Site Infection	5 (3.3%)	26 (13.0%)	175 (87.5%)
Sufficient information about how to prevent Dental site infection	4 (2.0%)	16 (8.0%)	180 (90.0%)*

Staff from the IPC program, the laboratory, and information technology departments are responsible for ensuring that systems are in place to support the surveillance program of prevention of Dental Site Infection	2 (1.2%)	18 (14.0%)	166 (86.5%)
Significantly different: *p<0.0001; †p<0.01			

Principles of Infection Control was significantly associated with many variables (Table .1). The findings of the current research showed that more than two third (78.0%)\*of the respondents were very aware of Principles of Infection Control with statistically significantly difference in relation to the aspect of Adequate information about how to prevent Infection.

Furthermore, it was found that Dental staff had high level of Judgment (83.3%) in relation to Senior management is responsible for ensuring that healthcare personnel, including licensed and no licensed personnel, are sufficiently trained and competent to perform their job tasks towards Infection. In addition preponderance of the participants (90.5%) Personnel from the IPC program, the laboratory, and information technology departments are accountable for ensuring that systems are in place to sustain the surveillance program of maintaining universal precaution.

#### 4. Discussion

Current study showed the level of Judgment of Principles of Infection Control was significantly associated with many variables (Table .1). The findings of the current research showed that more than two third (86.0%)\*of the respondents were very aware of Principles of Infection Control with statistically significantly difference in relation to the aspect of Adequate information about how to prevent Infection.

Furthermore, it was found that Dental staff had high level of Judgment (83.3%) in relation to Senior management is responsible for ensuring that healthcare personnel, including licensed and no licensed personnel, are sufficiently trained and competent to perform their job tasks towards Infection. In addition preponderance of the participants (90.5%) Personnel from the IPC program, the laboratory, and information technology departments are accountable for ensuring that systems are in place to sustain the surveillance program of maintaining universal precaution.

Our survey found gaps in Judgment and adherence with recommended PPE use for influenza control across all types of dental staff with restorative specialty. This 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' Judgment 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.

The fact that infection prevention and control practices can significantly improve patient outcomes at Dental Unit adherence with these practices is generally high. In our survey of dental staff with restorative specialty, majority of

the participants (79.0%) replied that they were adequacy of protective equipments within the current research setting. Majority of participants (77.0%) 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 with 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 Judgment, attitude, belief, and behavioral factors Predictors of PPE use Judgment' of correct PPE, age, and race were not significantly associated with reported PPE adherence in simple logistic as showed in (Table 1). Endodontic staff 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 on analyses.

Majority 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 Judgment regarding recommendations. In fact, a large proportion of our respondents also demonstrated important Judgment gaps. This current study findings s congruent with the results carried out by 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. This Judgment 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. Acknowledgment

Appreciation is hereby extended to all the participants for the statistical analysis of the data.

## 6. Conflicts of Interest

None declared.

## References

- [1] Loskoski SL. Disinfection and inactivation of the human T lymphotropic virus type III/Lymphadenopathy-associated virus. *J Infect Dis* 1985;152(2):400-3.
- [2] McDougal JS, Martin LS, Cort SP, Mozen M, Heldebrant CM, Evatt BL. Thermal inactivation of the acquired immunodeficiency syndrome virus, human T lymphotropic virus-III/lymphadenopathy-associated virus, with special reference to antihemophilic factor. *J Clin Invest* 1985;76(2):875-7.
- [3] Beltrami EM, Williams IT, Shapiro CN, Chamberland ME. Risk and management of blood-borne infections in health care workers. *Clin Microbiol Rev* 2000;13(3):385-407.
- [4] Gerberding JL. Incidence and prevalence of human immunodeficiency virus, hepatitis B virus, hepatitis C virus, and cytomegalovirus among health care personnel at risk for blood exposure: final report from a longitudinal study. *J Infect Dis* 1994;170(6):1410-7.
- [5] Ruben FL, Norden CW, Rockwell K, Hruska E. Epidemiology of accidental needle-puncture wounds in hospital workers. *Am J Med Sci* 1983;286(1):26-30.
- [6] Pruss-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):482-90.
- [7] Khuri-Bulos NA, Toukan A, Mahafzah A, et al. Epidemiology of needlestick and sharp injuries at a university hospital in a developing country: a
- [8] Wang FD, Chen YY, Liu CY. Analysis of sharp-edged medical-object injuries at a medical center in Taiwan. *Infect Control Hosp Epidemiol* 2010;21(10):656-8.
- [9] Pruss-Ustun A, Rapiti E, Hutin Y. Sharp injuries: global burden of disease from sharp injuries to health care workers Geneva, Switzerland. World Health Organization, 2003.
- [10] Orji EO, Fasubaa OB, Onwudiegwu U, Hutin Z. Occupational health hazards among health care workers in an obstetrics and gynaecology unit of a Nigerian teaching hospital. *J Obstet Gynaecol* 2002;22(1):75-8. Accessed June 17, 2007
- [11] Low DE, McGeer A: SARS—One year later. *N Engl J Med* 2003; 349:2381–2382
- [12] Chaovavanich A, Wongsawat J, Dowell SF, et al: Early containment of severe acute respiratory syndrome (SARS); experience from Bamrasnaradura Institute, T(UP)land. *J Med Assoc T(UP)* 2004; 87:1182–1187
- [13] Booth TF, Kournikakis B, Bastien N, et al: Detection of airborne severe acute respiratory syndrome (SARS) coronavirus and environmental contamination in SARS outbreak units. *J Infect Dis* 2005; 191:1472–1477
- [14] Cabana MD, Rand CS, Powe NR, et al: Why don't physicians follow clinical practice guidelines? A framework for improvement. *JAMA* 1999; 282:1458–1465
- [15] Siegel JD, Rhinehart E, Jackson M, et al; Healthcare Infection Control Practices Advisory Committee. 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings. Available at: [http://www.cdc.gov/ncidod/dhqp/gl\\_isolation.html](http://www.cdc.gov/ncidod/dhqp/gl_isolation.html). Accessed June 27, 2007
- [16] Pittet D, Simon A, Hugonnet S, et al: Hand hygiene among physicians: Performance, beliefs, and perceptions. *Ann Intern Med* 2004; 141:1–8
- [17] O'Boyle CA, Henly SJ, Larson E: Understanding adherence to hand hygiene recommendations: The theory of planned behavior. *Am J Infect Control* 2001; 29:352–360
- [18] Sax H, Uckay I, Richet H, et al: Determinants of good adherence to hand hygiene among healthcare workers who have extensive exposure to hand hygiene campaigns. *Infect Control Hosp Epidemiol* 2007; 28:1267–1274
- [19] Berhe M, Edmond MB, Bearman GM: Practices and an assessment of healthcare workers' perceptions of compliance with infection control awareness of nosocomial infections. *Am J Infect Control* 2005; 33:55–57
- [20] Palenick C. Strategic planning for infection control. *J Canadian Dental Association* 2000;66:556-7.
- [21] Danchaivijitr S, Tantiwatanapaiboon Y, Chokloikaew S, et al. Safety: knowledge, compliance and attitudes of doctors and nurses in Thailand. *J Med Assoc Thai* 1995;78 Suppl 2:S112S117.
- [22] Twitchell K. Bloodborne pathogens: what you need to know—Part I. *Journal of the American Association of Occupational Health Nurses* 2003;51:46-7.