

**KNOWLEDGE, ATTITUDE AND PRACTICES AMONG DENTAL STUDENTS AND HOUSE OFFICERS REGARDING INFECTION CONTROL IN CLINICAL SETTINGS**Atiquddin Mallick¹, Sheikh Abdul Khaliq^{2,*}, Muhammad Nasir³, Zahid Khan⁴¹Department of Prosthodontic, Karachi Medical & Dental College, Karachi, Pakistan²Department of Pharmaceutics, Faculty of Pharmacy, Federal Urdu University, Karachi, Pakistan³Department of Periodontics, Karachi Medical & Dental College, Karachi, Pakistan⁴Department of Pharmacognosy, Faculty of Pharmacy, Federal Urdu University, Karachi, Pakistan***Corresponding author e-mail:** sheikh1974@gmail.com**ABSTRACT**

The rationale of this study was to determine the level of knowledge, attitude, and practice in regard to standards isolation, precautions among dentistry students in different dental colleges of Karachi so that steps could be taken to enhance the standards of dental practice and reduce the probabilities of cross infection. The main objective of the study was to determine Knowledge, Attitude and Practices in regard to infection control related precautions among the dental students and house officers in the dental colleges of Karachi and to find out association between KMDC (Karachi Medical & Dental College) and other dental colleges for dental hygiene practices. The study has been conducted in five dental colleges of Karachi, 409 students of third year, final year and internees were recruited to solve the questionnaire for the duration of December 2011 to January 2012. Sample size is determined, based upon WHO criteria and the statistical analysis was performed for mean, standard deviation and age ranges. Chi Sq. was applied to determine the significance at P value <0.05. Findings of study revealed that majority of students are female in dental colleges of Karachi, among them, 77.70% believe that rate of transmission of Hepatitis-B is high while 12.30% rated AIDS as the highly transmissible infection. During the practice or trainings 24% of students and interns use goggles while 72% use detergents/antiseptics to wash their hands and 8% do not bend the needles after use. Pre dental examinations washing of hands were lacks by 5% of students and internees while almost same proportion (5%) do not get vaccination against Hepatitis-B infection. The study reveals that, it is quite evident that most of the students and internees have good knowledge of infection control in the dental clinics and also using personal protective equipments. They are practicing the standard infection control methods. The attitude towards infection control was a little poor in some of the respondent. A large number of the respondent did not use goggles for droplet splash in the dental clinic and no significant association was found between KMDC and other dental colleges regarding dental hygiene practices.

Key words: Infection, Control, Students, Dental, Hygiene, Hepatitis-B, AIDS, Personal, Equipments**INTRODUCTION**

Knowledge, attitude and practice act as three pillars, which make up the dynamic system of life itself. Knowledge is information that is acquired or gained. It may be gained by reading a book or acquired in the classroom.^[1] Knowledge is gained to learn and knowing about what is right and wrong or how to do the things in a systematic manner. Attitude is the system of thinking or working in a proper manner in

a situation. There could be a number of furtherance to emphasize a situation but it depends on how an individual reacts towards the situation. Practice means contemplation of rules and knowledge that lead to action. Thus, a right knowledge, a positive attitude and a good practice are imperative to guide and serve the patients. Dental students are working in the dental clinics and they are exposed to the environment of infection most of the time. Dental

students are at a higher risk of infections caused by various microorganisms. In the dental setting, there are special circumstances that lead to infection than any other person of the society.^[2] Prevention of cross infection in the dental clinic is therefore a critical aspect of dental practice and dental students working in the dental hospital must adopt certain basic routines while practicing.^[3] Therefore, it is appropriate to always use eye/face protection and have adequate suction when using high-speed rotary instruments. It is also very important to strictly follow the rules of precautions and universal standard of prevention during working over the patients.^[4] So it is very much advisable for the students and interneers to use eye protection with lateral shield facemask, protective gown and gloves at all times during working in the dental clinics. In 2003, the Center for Disease Control and Prevention of the United States of America (CDC) updated their guidelines for infection control in dental settings.^[5] These guidelines included standard precautions which aim to ensure a safe working environment and therefore it is very important to prevent from infectious disease and adhere to the international standard of precautions for all patients.^[6] Dental student and interneers can get infected in a number of ways including direct contact of blood in the finger nails oral fluids or other secretions of body fluids; indirect contact with contaminated instruments, operatory equipments, environmental surfaces, contact with airborne contaminants present in either droplets, splatter or aerosols of oral and respiratory fluids.^[7]

It is a known fact that the health workers are most likely to be affected with infection while treating their patients. it was reported that dentist were more likely to be infected by Hepatitis B and HIV infections than normal population.^[8] A dentist's hand is considered to be the major source of cross infection due to contaminated blood and oral fluids. It is difficult to remove infected blood from the finger nails and nail fold areas, though it is never demonstrated that by any experiment.^[9] Mostly injuries in the dental operatory are with small gauge needles or compact instruments, which follow a percutaneous exposure involving blood in mucous membrane. Exposure to infected blood can result in transmission from patient to dentist, from dentist to patient and from one patient to another. There are greater chances of transmission from patient to dentist.

The increasing number of contamination, cross infection and transmission of infection between patients and dentist have alarmed the health community and forced them to think seriously about

the infection control, which in turn has brought about a change in their behavior regarding infection control during the last decade. Infection control practices in developing countries have not been widely indexed. Nowadays in dental hospital, dental students are being well trained and dental hospitals are adopting the infection control programs. Due to lack of awareness and problem of abominable trained personnel's, there exists a lack of proper practice of infection control by both dental staff and dental nurses.

AIDS infection epidemic in the 1980s forced the health care workers to take strict precautions in the dental clinics and in the hospitals for the safety of the doctors, paramedical staffs and the patients. This led to the formation of effective protocols and recommendations by the Center for Disease Control concerning the prevention of HIV infection transmission in health care settings and universal precautions guidelines.^[10] However, these guidelines were limited, so in 1996 the Centers for Disease Control adopted the term "standard precautions" to embrace a broader concept of the prevention and transmission of infections. Standard precautions integrate and expand the elements of universal precautions into a standard of care designed to protect health care professional (HCP) and patients from pathogens that can be spread by blood or any other body fluid, excretion, or secretion.^[11]

It has seen in the dental schools that a lot of emphasis is placed in the infection control procedures, and training is provided. It has seen that a very few dental student have adhered to these procedures in the clinics to avoid any kind of injury and infection or to reduce the risk of acquiring occupational infections from both known and unknown sources in the healthcare setting. Awareness and compliance with these recommendations is crucial for the prevention of occupational and nosocomial infections in healthcare workers, including dental healthcare professionals.

MATERIAL AND METHODS

The rational of this study was to determine the level of knowledge, attitude, and practices in regard to the standards isolation, precautions among dentistry students in different dental collages of Karachi so that steps could be taken to enhance the standards of dental practices and reduces the probabilities of cross infection.

Study participants: Third year and final year students and interneers.

Study design: Comparative cross-sectional survey.

Duration: December 2011 to January 2012.

Setting: Karachi Medical and Dental College (KM&DC), Baqai Dental College (BDC), Ziauddin College of Dentistry (ZCD), Fatima Jinnah Dental College (FJDC) and Dr. Ishrat-ul-Ebad Khan Institute of Oral Health Sciences of Karachi (DIIOHS).

Data collection procedure: Data was collected through questionnaire from students and internees of above mentioned dental colleges. It consisted of all closed ended questions. The consent of the participants was taken on the spot and the questions were given to the students and house officers present at that time in the dental hospital clinic. Sample size 409 dental students and interns and sample size was calculated by step formula recommended by WHO.

Sample type: Non- probability purposive sampling.

Inclusion criteria: BDS (Bachelor of Dental Surgery) students of 3rd year, final year and internee.

Exclusive criteria: Dental Staff.

Statistical Analysis: SPSS version 17 was employed. Means and standard deviation were calculated for numeric variable like age. Categorical variables were displayed through charts. Chi square test of significance was applied, keeping the p-value at 0.05, to find out association between KMDC and other dental colleges regarding dental hygiene practices.

RESULTS

It is evident from Table-I that majority of the students are female. Open merit admission policies of dental colleges are resulting in less number of admissions of male candidates.

Most of the students and internees gave the correct answers to the questions regarding knowledge about dental hygiene. 77.7% thinks that hepatitis-B has the highest rate of transmission while 12.3% thinks that AIDS is highest transmitting disease (Table.II).

Table-III represents that most of the students and internees practice infection control measures and use personal protective equipment. Only 24% of the students and internees use goggles, Regarding practice only 73% use detergents/antiseptic for washing hands and 6.8% do not bend needles. 1.9% do not wash hands before dental examination. 6% did

not get shots of hepatitis vaccines while 98% had vaccination against tetanus.

Name of college dental hygiene Cross tabulation

	Dental Hygiene		Total
	No	Yes	
KMDC	31	7	38
Other Dental colleges	321	46	367
Total	352	53	405

Pearson chi square two sided is 0.312 has been applied and no significant association found between KM&DC and other dental colleges regarding dental hygiene practices.

DISCUSSION

In this study the knowledge of the students and internees on dental hygiene is not satisfactory. Though ~1% of the respondent said isolation is not important for infection control. This must not be the case. Knowledge on other questions like transmission of disease through dental procedures and sterilization methods was satisfactory. It was evident from this study that autoclave was used as sterilization method (98.7%) in an accordance with the other studies like Henrique et al^[12], which was conducted in 1995 to assess the attitude and behavior of the dental students and found that 83.8% used autoclave to sterilize instrument. The percentage increased by 95.9 in 2005. Another study conducted in 2011 by Abhinav^[13] clearly indicating the use of autoclave by 94.9%.

The differences between dental practices of KM&DC (dental students and house officers) and other dental colleges (dental students and house officers) was found not significant. The study revealed a good adherence to standard precautions of isolation among the dental settings of different dental colleges. The result was quite different from the results of Mehrdad Askarian, Kamran Mirzaei et al.^[14] Another finding is that 93.8% of respondents are vaccinated for hepatitis-B which is a quite good percentage as compared to the study done by Abhinav sing, his result was 69.8%. Despite of the high percentage of vaccination, it is desirable that most of the dental students and practicing dentist should be vaccinated for hepatitis-B, as the incidences of hepatitis-B infection are continuously rising.

Recommendation: It is recommended that all the health care workers and especially dentist should be 100% covered by hepatitis vaccine because they are directly exposed to different fatal infections. They are directly in contact with the patients and patient's blood, body fluids, instrumentation and needle stick injuries.

CONCLUSION

It is quite evident that most of the students and internees have good knowledge of infection control

in the dental clinics and also using personal procreative equipments. They are practicing the standard infection control methods. The attitude towards infection control was a little poor in some of the respondent. A large number of the respondent did not use goggles for droplet splash in the dental clinic. The results of the study can conclude that in most of the public and private sector dental colleges infection control methods are being taught and practiced quite efficiently.

Table-I (Demographic details) N=409

Male	167 (40.8%)
Female	242 (59.2%)
Third year BDS	147 (35.94%)
Fourth year BDS	172 (42.05%)
Interns	90 (22.00%)
Mean age	22.39 years
SD	1.35 years
Minimum age	21 years
Maximum age	26 years

Table-II. Questions regarding Knowledge

Do you think isolation is important	YES (303)98.4%	NO (3)1%
Best method for sterilization	Autoclave (304) 98.7%	
	Boiling (1).3%	
	Washing (1).3%	
Which of the following disease has highest rate of transmission	Hepatitis-B (233)77.7%	
	AIDS (37)12.3%	
	Don't know(30)10.0%	

Table-III Questions regarding attitude and practice

	YES	NO
Wearing gown	(292)94.8%	(14)4.5%
Wearing gloves	(298)96.8%	(7)2.3%
Wearing goggle	(74)24%	(233)75.6%
Bending needle	(274)92.5%	(21)6.8%
Washing hands when contaminated with blood or body fluids.	(300)98.1%	(6)1.9%
Washing hands with Soap/Detergent or Antiseptics	(225)73.1%	(81)26.3%
Vaccinated	Hepatitis (289)93.8%	Tetanus (6) 1.9%

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