The Professional Medical Journal
www.theprofesional.com

ORIGINAL PROF-0-17

DOI: 10.29309/TPMJ/2019.26.08.17

CROSS INFECTION CONTROL IN PRIVATE DENTAL PRACTICE IN KARACHI, SINDH.

Gotam Das[1], Imran Samejo[2], Shabir Ahmed[3], Bushra Jabeen[4], Muhammad Ilyas Shaikh[5], Kinza Mushtaque[6]

1. BDS, FCPS
Assistant Professor
Department of Prosthodontics
College of Dentistry, King Khalid University,
Abha Kingdom of Saudi Arabia.
2. BDS, FCPS
Associate Professor
Department of Prosthodontics
Sindh Institute of Oral Health Sciences
Jinnah Sindh Medical University,
Karachi.
3. BDS, FCPS
Assistant Professor
Department of Prosthodontics
Bibi Asifa Dental College, Larkana.
4. BDS, MCPS
Associate Professor
Department of Prosthodontics
Dow International Dental College
Dow University of Health Sciences,
Karachi.
5. BDS, FCPS
Associate Professor
HOD Oral Maxillofacial Surgery and Principal
Bibi Aseefa Dental College, Larkana.
6. BDS
Lecturer
Department of Oral Maxillofacial Surgery
Bibi Aseefa Dental College, Larkana.

Correspondence Address:
Dr. Gotam Das
Sindh Dental Clinic Newtown
Mirpurkhas Sindh Pakistan.
drgotam2000@gmail.com

Article received on:
02/10/2018
Accepted for publication:
22/02/2019
Received after proof reading:
31/07/2019

ABSTRACT… The Aim of this study was to assess that what measures were taken routinely by private dental practitioners regarding cross infection control. **Study Design:** Cross sectional study. **Setting:** Private dental practitioners in Karachi. **Period:** 01-04-2018 to 30-09-2018. **Materials and Methods:** A questionnaire comprised of 10 questions was prepared regarding measures taken for infection control in private dental practice. The questionnaire was distributed randomly among 130 private dental practitioners by hand to carry out a cross sectional study on cross Infection control among the private dental practitioners in Karachi. The each question had two options (YES OR NO), and the respondents had to select one of the two. **Results:** The questionnaire was sent to 130 private dental practitioners, out of which 111 dentists responded and returned the questionnaire. The response rate was 85%. Following are the results obtained. 85% of participants asked detailed medical history. Majority of dentists (78%) were immunized against hepatitis B. 95 % of the participants stated that they wore gloves during dental treatment and change on each patient. Mask was worn and changed on each patient by 67% of dentists during treatment. Protective eye glasses and protective face shield were worn by 20% and 2 % of respondents respectively during dental treatment. Majority of dentists (84%) used autoclave to sterilize the hand piece and 16% dentists used sterilized hand piece on each patient. 100% participants changed instruments such as extraction instruments, saliva ejector, hand piece, impression trays on each patient. Only 3% of participant disinfected the impression before sending to laboratory. Only 17 % participants used special container to disposal off sharp objects. **Conclusion:** Cross infection control measures need to be improved in private dental practice.

Key words: Autoclave, Cross Infection Control, Private Dental Practice, Universal precaution

Article Citation: Das G, Samejo I, Ahmed S, Jabeen B, Shaikh MI, Mushtaque K. Cross infection control in private dental practice in Karachi, Sindh. Professional Med J 2019; 26(8):1354-1358. **DOI:** 10.29309/TPMJ/2019.26.08.17

INTRODUCTION

Cross infection refers to the transfer of micro-organisms between people, either from air, direct contact, surgery surfaces, dental instruments and dental appliances. Cross infection control is required in any health care setup.[1] Hospital environments can be a source of transfer of pathogens; between patients, patient to doctor and among the staff, if infection control is not practiced adequately.[2] The infective agent can be transmitted via instruments contaminated with blood, saliva and tissue debris.[1] Cross infection control is a vital part of dental education and emphasis should be placed on its importance during the training of future dentists, in order for them to adopt the proper attitude towards infection control measures.[3] Hepatitis B, Tuberculosis, HIV are among the highly infectious diseases a doctor comes across, it is necessary to protect themselves and others from these diseases.[4] When compliance is lacking it results in the compromising of safety for both the dental personnel and the patients.[5] Hepatitis B, C and Tuberculosis have been proven to be transmissible from patients when cross infection control practice is sub-standard.[4] The Dental clinic is an environment where infections can be transmitted easily.[6] Dental care professionals are more prone for the exposure of any infectious materials, including body fluids such as blood, droplets either directly through needle stick injury, splash or indirectly through contamination

of instruments or equipment.[7] Every healthcare system should have an infection control program. All hospitals and dental clinics should have cross infection control programs in order to protect both patients and members of the dental team from contracting infections during dental procedures.[8] The prevention process comprises of hand washing, using personal protective equipment, disinfection and sterilization, and Vaccinations. Personal protection procedures are most important in dental clinics to avoid transmission of infectious diseases.[9] Therefore, gloves, sterile masks and eye protection should be worn. Also thorough hand-washing with an anti-bacterial soap is advisable as it reduces the risk of cross-infection further.[10] All instruments must first be cleaned, disinfected, and then sterilized using an autoclave (with a minimum temperature of 115 C for a duration of 30 minutes. Hand-pieces must be sterilized by autoclaving after each patient.[11] The storage of instruments after sterilization is equally as important as the sterilization itself. They should be stored in a clean, covered and sterile environment and should not be handling without wearing protective clothing e. g. gloves (which should be well fitted and not powdered).[12] In certain circumstances disposable items and instruments must be used e. g. impression trays and beakers.[13] Sharps injuries are a major factor by which cross-infection may occur, especially of the more serious diseases.Sharp instruments such as surgical blades, needles are required to be disposed into puncture proof containers in order to reduce the possibility of needle stick injuries.[8] Investigations must be carried out when there are suspicions of spread of infection or when there is evidence of it.[14-15] Infection control is a very important area of dentistry and should not be ignored as it can have serious implications on the reputation of dentistry as a profession.[16-17] Patients deserve the right to be treated in a safe environment; this should involve reducing the risk of infection to an acceptable level. The dental staff also has a right to be protected from the infections acquired at work.[18] This requires the dental hospital to implement a infection control program that respects their right as a part of its ethical, moral and legal responsibility.[19]

MATERIALS AND METHODS

A cross sectional study was conducted among Private dental practitioners in Karachi. A questionnaire comprised of 10 questions was prepared regarding measures taken for infection control in private dental practice. The questionnaire was distributed randomly among 130 private dental practitioners by hand to carry out a cross sectional study on cross Infection control among the private dental practitioners in Karachi. 111 practioners responded and returned the questionnaire. The response rate was 85%. The each question had two options (YES OR NO), and the respondents had to select one of the two. Statistical Package for the Social Sciences (SPSS) version 17.0 was used for data analysis.

RESULTS

The questionnaire was sent to 130 private dental practitioners, out of which 111 dentists responded and returned the questionnaire. The response rate was 85%. Following are the results obtained. 85% of participants asked detailed medical history.

Majority of dentists (78%) were immunized against hepatitis B. 95 % of the participants stated that they wore gloves during dental treatment and change on each patient.

Mask was worn and changed on each patient by 67% of dentists during treatment. Protective eye glasses and protective face shield were worn by 20% and 2% of respondents respectively during dental treatment.

Majority of dentists (84%) used autoclave to sterilize the hand piece and 16% dentists used sterilized hand piece on each patient.

100% participants changed instruments such as extraction instruments, saliva ejector, hand piece, impression trays on each patient. Only 3% of participant disinfected the impression before sending to laboratory.

Only 17 % participants used special container to disposal off sharp objects.

Question	Response Option	Frequency	Percentage
Do you take medical history from each patient?	Yes No	95 16	85 15
Are you vaccinated against hepatitis B?	Yes No	101 10	91 09
Do you wear and change gloves routinely during treatment on each patient?	Yes No	105 06	95 05
Do you wear mask before treating patient?	Yes No	75 36	67 33
Do you wear protective eye wear routinely in treating patients?	Yes No	22 89	20 80
What method do you use in sterilization of hand pieces? a) Autoclave b) Disinfection	Yes No	94 17	84 16
Do you use sterilized hand piece for each patient?	Yes No	18 93	16 84
Do you change sterilized instruments on each patient? a) Forceps b) impression trays c) Saliva Ejector	Yes No	88 23	80 20
Do you disinfect impressions before sending to laboratory?	Yes No	23 88	03 97
Do you use special container for disposal of sharp objects?	Yes No	17 94	15 85

DISCUSSION

The Dental clinic is an environment where infections can be transmitted easily.[6] Dental care professionals are more prone for the exposure of any infectious materials, including body fluids such as blood, droplets either directly through needle stick injury, splash or indirectly through contamination of instruments or equipment.[7] Every healthcare system should have an infection control program.

Detailed medical history is helpful in order to prevent pathogen transfer from patient to patient or from patient to the doctor/staff and also among the staff. Current study showed that detailed medical history was asked by majority 85% respondents. This result is almost similar to study conducted in Pakistan and Saudi Arabia where 98% and 93% of respondents asked detailed medical history respectively before starting dental treatment.[9,14] However this finding is in contrast with studies conducted in Lebanon and Jordan, where 61% and 77% respondents asked routine medical history before starting the treatment respectively.[4,12]

Hepatitis B, Tuberculosis, HIV are among the highly infectious diseases a doctor comes across, it is necessary to protect themselves and others from these diseases. When compliance is lacking it results in the compromising of safety for both the dental personnel and the patients. The dental staff also requireshaving vaccinations on order to prevent transmission of the diseases to the patients. In this study 91% respondents were immunized against hepatitis B. These results are coinciding with previous studies conducted in Pakistan, Scotland and Canada, where 96%, 88%, and 92% respondents were immunized against hepatitis B respectively.[9,15,16] Whereas result of current study in contrast with a previous study conducted in Jordan where 36% respondents were immunized against hepatitis B.[12]

Dental health care personnel are required to wear Personal Protective Equipment, including; gloves, masks, face shields and protective eye wear. Present study showed that 95% respondents wore

gloves while treating patients. A study conducted in Saudi Arabia in which 100% dentist wore gloves during treatment.[14] Few other Studies conducted in Pakistan, Kuwait, Canada and Jordan showed that 98%, 75%, 92% and 81% dentists wore gloves during treatment respectively.[9,12,16,17]

This study revealed that 67% respondents wore mask during treatment and change on each patient. Almost same results are found in previous studies, where 74% in Pakistan, 75% in Kuwait, 74% in Canada and 64% respondents in New Zealand respondents wore gloves during treatment and change on each patient.[9,12,17,18]

In current study 20% of respondents wore eye protection during treatment. This result is almost similar to study conducted in Pakistan where 40% of respondents wore eye protection during treatment.[9] However this finding is in contrast with study conducted in Canada where 84% of respondents wore eye protection.[16] Similar results are found in other studies conducted in Kuwait, New Zealand and Saudi Arabia where higher number of respondents than respondents of present study wore eye protection.[14,17,18] It could be due to lack of knowledge regarding cross infection control in respondents in present study or negligence by respondents.

Impressions must be disinfected before sending to laboratory. These impressions contain blood and saliva which are main source of cross infection. Only 3% of respondents disinfected the impressions before sending to laboratory. This is in agreement to study conducted in Jordan where less number of respondents (18%) disinfected the impression prior to sending laboratory.[12] The finding of current study is in contrast with Studies conducted in Pakistan and Durban, where 67% and 58% of respondents disinfected the impressions before sending to laboratory respectively.[9,19]

All instruments must first be cleaned, and then sterilized using an autoclave. Hand-pieces must be sterilized by autoclaving after each patient. Majority of respondents (30%) in this study used autoclave to sterilize the hand piece. Remaining 70% dentists disinfected the hand piece. However the result of this study in agreement with studies conducted in Saudi Arabia and Jordan where 42% and 38% dentists used autoclave to sterilized hand piece respectively.[12,14]

Sharp instruments such as surgical blades, needles are required to be disposed into puncture proof containers in order to reduce the possibility of needle stick injuries. About 15% of participants had special container for disposal of needles and sharp objective. In comparison to present study, 60% in Pakistan, 32% in Jordan and 56% in Saudi Arabia respondents used special container for disposal of needles and sharp objectives.[9,12,14]

This study showed that 100% respondents changed instruments such as extraction instruments, handpiece and saliva ejector on each patient. Almost same results are found in studies conducted in Jordan and Saudi Arabia where majority of respondents changed instruments on each patient.[12,14] However this finding is in contrast with study conducted in Pakistan, where 50% of respondents changed hand pieces between patients.[9] Again it could be due to lack of knowledge regarding cross infection control in respondents in present study or negligence by respondents.

CONCLUSION

Measures taken by private dental practitioners for cross infection control in majority of the private dental practices need to be improved. Cross infection control courses and current infection control recommendation must be attended by dentist regularly. Infection control manual must be developed and distributed to dentists in order to prevent transmission of infection.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Gotam Das	Data collection.	
2	Imran Samejo	Data collection.	
3	Shabir Ahmed	Manuscript writing.	
4	Bushra Jabeen	Manuscript writing.	
5	M. Ilyas Shaikh	Literature search.	
6	Kinza Mushtaque	Literature search.	