

ATTITUDE AND PRACTICE OF INFECTION CONTROL PROTOCOL AMONG DENTAL HEALTH FACILITIES

Hattan Mohammad Baismail¹, Ali Salem Alsalem¹, Osama Talha Hawsawi¹, Fayez Ghadeer Alanazi¹, Turki Saad Alfridy¹, Ahmed Salehm Alfadhel¹, Jalal Yousef Alghadeer¹, Abdulaziz Ahmed Alahmari¹, Omar Khalil Alshaikh¹, Shahzeb Hasan Ansari^{2*}

¹ General practitioners, private dental clinic, Jeddah, Saudi Arabia.

² Faculty Riyadh Elm University, Riyadh, Saudi Arabia.

ABSTRACT

Introduction: The clinical staff should be trained and informed about the proper protocol concerning infection control to provide the patients with the safest possible dental care. Moreover, dental health care workers are at risk of catching infectious diseases as well.

Materials and Methods: This is a cross-sectional study conducted in the local health administration offices of various cities in Saudi Arabia. A total of nine cities including Jeddah, Makkah, Riyadh, Qasim, Abha, Arar, Tabouk, and Alsharqiyah were included in this study. Local health administration offices in each of the above-mentioned cities were visited by one of the study authors and conducted a brief interview with the manager.

Results: 87.5% of the included cities had more than 30 registered dental clinics, 50% reported to have more than 15 clinics having CBAHI, 75% cities reported to have registered dental assistants, 37.5% of them revealed that there were less than 5 registered assistants having bachelor's degree or higher.

Conclusion: There is a need of recruiting qualified dental assistants in all cities as there is a difference among several cities.

Key words: Dental assistants, infection control, attitudes, practice.

Introduction

Cross infection is one of the most important challenges dental health care workers face daily. In recent times, dental patients have become much more aware of the fact that infections may spread from the dental office. Therefore, the clinical staff should be trained and informed about the proper protocol concerning infection control to provide the patients with the safest possible dental care. Moreover, dental health care workers are at risk of catching infectious diseases as well. Thus, posing a threat to their health and increasing the need for better infection control knowledge, attitude, and practice. The dental healthcare workers must protect themselves when coming in contact with blood, saliva, contaminated instruments, and aerosols¹.

Several studies in different parts of the world have focused on the importance of infection control in dental clinics²⁻⁵. An investigation conducted in Karachi, Pakistan among dental healthcare workers demonstrated a positive and satisfactory level of KAP. It was noted from the findings that 92.2% of the study subjects followed the inflectional protocol professionally and 66.7% of them were vaccinated against Hepatitis B⁶.

Dental healthcare workers are constantly exposed to sharp instruments and objects when dealing with patients. The risk

of cross-infection increases too many folds when a sharp instrument injury occurs. Therefore, infection control protocol regarding the handling of sharp objects should be properly applied in the dental office, and personnel should be trained and educated on how to manage a sharps injury to themselves as well as to the patients. An Indian study investigated the knowledge and practice of general dental practitioners regarding the various sterilizing procedures. The findings revealed a relatively average level of KAP among the dental professionals⁷.

Another study was done in Makkah; Saudi Arabia focused on the KAP of infection control among the dental professionals in the private sector. It was reported from the findings that a large majority of personnel were not vaccinated against major infectious diseases. It was also noted that 70% of the study subjects used unsafe methods of needle bending. However, attitude related to the disposal of sharps was reported to be relatively positive⁸.

Aims of the study:

- To assess the attitude and practice of dental healthcare facilities in various cities regarding the infection control protocol
- To compare the findings based on different cities.

Materials and Methods:

Study Design: This is a cross-sectional study conducted in the local health administration offices of various cities in Saudi Arabia.

Study Sample: A total of nine cities including Jeddah, Makkah, Riyadh, Qasim, Abha, Arar, Almadinah, and Alsharqiyah were included in this study. Local health administration offices in each of the above-mentioned cities were visited by one of the study authors and conducted a brief interview with the manager.

Study Instrument: A paper-based questionnaire was designed with questions related to the number of qualified dental assistants who are registered, protocol towards infection control protocol, and occurrence of any mishap due to failure to follow infection control protocol. Questions were asked with categorical responses.

Statistical Analysis: Collected data were analyzed using SPSS version 22, where descriptive as well as inferential statistics will be conducted. Comparisons between groups will be made using cross-tabulation.

Results:

A total of nine local health administration centers were contacted and their managers' responses were recorded. Table 1 shows the responses and their percentages for each question asked, which revealed that 87.5% of the included cities had more than 30 registered dental clinics, 50% reported to have more than 15 clinics having CBAHI, 75% of cities reported to have registered dental assistants, 37.5% of them revealed that there were less than 5 registered assistants having a bachelor degree or higher, and 12.5% reported to have less than 20 dental assistants having a diploma or lower qualification. 12.5% revealed that they did not have dental assistants responsible for sterilizing dental equipment, 75% reported having a specific sterilization room in the center for dental equipment, and only 12.5% revealed an infection happening due to the use of infected dental equipment. 100% of the centers reported that there are supervisory visits to the clinics and also, all centers revealed the three-staged protocol in case any sterilization error is seen in dental clinics.

Table 2 shows that only Abha reported having less than 20 dental clinics and having less than 10 clinics having CBAHI (Table 3). The Health administration center also revealed that there were 20-30 registered dental assistants in Makkah city (Table 4). Qasim and Riyadh reported having more than 10 dental assistants having a bachelor's degree or more (Table 5). Whereas Tabuk, Jeddah, Alsharqiya, Qasim, Arar, and Riyadh centers reported having more than 25 dental assistants with a diploma or less (Table 6). Table 7 shows that Makkah reported having less than 10 dental assistants qualified to disinfect dental clinics. Abha and Alsharqiya

reported having no dental assistants who were responsible for the sterilization of dental equipment (Table 8). Moreover, Makkah and Alsharqiya centers revealed that there was no specific sterilization room in the center for dental equipment (Table 9). Encouragingly, all cities reported having provided training to other assistants if the trained dental assistant was not available to disinfect the clinic (Table 10). Furthermore, no incident related to infection caused by a piece of used dental equipment was recorded by any center of included cities (Table 11). Only Makkah city health administration center reported patients complaining about sterilization dental equipment (Table 12). Makkah and Qasim centers revealed if a dental examination tool falls on the floor, the tool was not changed or swapped with alcohol (Table 13). All cities had regular supervisory visits for the quality purpose (Table 14) and only Makkah city reported not to have a qualified charged employee for monitoring sterilization quality (Table 15).

Survey Questions	Response Frequencies
1. How many dental clinics are there in the city?	Less than 20: 12.5% More than 30: 87.5%
2. How many dental clinics in the city have CBAHI?	Less than 10: 12.5% Between 10-15: 37.5% More than 15: 50%
3. How many dental assistants are registered in the city?	Between 20-30: 12.5% More than 30: 75% Do not have: 12.5%
4. How many dental assistants in the city have bachelor's degrees or more?	Less than 5: 37.5% Between 5-10: 25% More than 10: 25% Do not have: 12.5%
5. How many dental assistants in the city with a diploma degree or less?	Less than 20: 12.5% More than 25: 75% Do not have: 12.5%
6. How many dental assistants are qualified to disinfect dental clinics	Less than 10: 12.5% More than 15: 75% Do not have: 12.5%
7. Is there a dental assistant in the center who is responsible for the sterilization of dental equipment?	Yes: 75% No: 25%
8. Is there a specific sterilization room in the center for dental equipment?	Yes: 75% No: 25%
9. In case there is no trained assistant to disinfect dental clinics, does the center provide or train other assistants for this job	Yes: 100% No: 0%

10. Did any infection happen with infected or used dental equipment?	Yes: 0% No: 100%
11. Did the center receive any patient complaints about the sterilization of dental equipment?	Yes: 12.5% No: 87.5%
12. If a dental examination tool falls on the floor, the tool will be changed or swapped with alcohol	Yes: 75% No: 25%
13. Are there supervisory visits to the dental clinics in the city for quality proposes	Yes: 100% No: 0%
14. Is there a qualified charged employee for monitoring sterilization quality	Yes: 87.5% No: 12.5%
15. In case sterilization error seen in dental clinics or equipment, what is the protocol and regular procedures for it?	First, a verbal warning with clarifying of the cause of the mistake/error: Second, a formal written warning is sent and signed Last, an administrative audit is sent the investigate with a penalty to the worker if it's their fault

Table 1: Response to survey questions from all regional centers.

Cities	Less than 20	More than 30
Abha	✓	
Makkah		✓
Tabuk		✓
Jeddah		✓
Alsharqiyah		✓
Qasim		✓
Arar		✓
Riyadh		✓

Table 2: How many dental clinics are there in the city?

Cities	Less than 10	Between 10-15	More than 5
Abha	✓		
Makkah			✓
Tabuk			✓
Jeddah			✓
Alsharqiyah			✓
Qasim		✓	

Arar		✓	
Riyadh		✓	

Table 3: How many dental clinics in the city have CBAHI?

Cities	Between 20-30	More than 30	Do not have
Abha			✓
Makkah	✓		
Tabuk		✓	
Jeddah		✓	
Alsharqiyah		✓	
Qasim		✓	
Arar		✓	
Riyadh		✓	

Table 4: How many dental assistants are registered in the city?

Cities	Less than 5	Between 5-10	More than 10	Do not have
Abha				✓
Makkah	✓			
Tabuk		✓		
Jeddah	✓			
Alsharqiyah	✓			
Qasim			✓	
Arar		✓		
Riyadh			✓	

Table 5: How many dental assistants in the city have bachelor's degrees or more?

Cities	Less than 20	More than 25	Do not have
Abha			✓
Makkah	✓		
Tabuk		✓	
Jeddah		✓	
Alsharqiyah		✓	
Qasim		✓	
Arar		✓	
Riyadh		✓	

Table 6: How many dental assistants in the city with a diploma degree or less?

Cities	Less than 10	More than 15	Do not have
Abha			✓
Makkah	✓		
Tabuk		✓	
Jeddah		✓	
Alsharqiyah		✓	
Qasim		✓	
Arar		✓	
Riyadh		✓	

Table 7: How many dental assistants who are qualified to disinfect dental clinics

Cities	Yes	No
Abha		✓
Makkah	✓	
Tabuk	✓	
Jeddah	✓	
Alsharqiyah		✓
Qasim	✓	
Arar	✓	
Riyadh	✓	

Table 8: Is there a dental assistant in the center who is responsible for the sterilization of dental equipment?

Cities	Yes	No
Abha	✓	
Makkah		✓
Tabuk	✓	
Jeddah	✓	
Alsharqiyah		✓
Qasim	✓	
Arar	✓	
Riyadh	✓	

Table 9: Is there a specific sterilization room in the center for dental equipment?

Cities	Yes	No
Abha	✓	
Makkah	✓	
Tabuk	✓	

Jeddah	✓	
Alsharqiyah	✓	
Qasim	✓	
Arar	✓	
Riyadh	✓	

Table 10: In case there is no trained assistant to disinfect dental clinics, does the center provide or train other assistants for this job

Cities	Yes	No
Abha		✓
Makkah		✓
Tabuk		✓
Jeddah		✓
Alsharqiyah		✓
Qasim		✓
Arar		✓
Riyadh		✓

Table 11: Did any infection happen with infected or used dental equipment?

Cities	Yes	No
Abha		✓
Makkah	✓	
Tabuk		✓
Jeddah		✓
Alsharqiyah		✓
Qasim		✓
Arar		✓
Riyadh		✓

Table 12: Did the center receive any patient complaints about the sterilization of dental equipment?

Cities	Yes, changed	No
Abha	✓	
Makkah		✓
Tabuk	✓	
Jeddah	✓	
Alsharqiyah	✓	
Qasim		✓

Arar	✓	
Riyadh	✓	

Table 13: If a dental examination tool falls on the floor, the tool will be changed or swapped with alcohol

Cities	Yes	No
Abha	✓	
Makkah	✓	
Tabuk	✓	
Jeddah	✓	
Alsharqiyah	✓	
Qasim	✓	
Arar	✓	
Riyadh	✓	

Table 14: Are there supervisory visits to the dental clinics in the city for quality proposes

Cities	Yes	No
Abha	✓	
Makkah		✓
Tabuk	✓	
Jeddah	✓	
Alsharqiyah	✓	
Qasim	✓	
Arar	✓	
Riyadh	✓	

Table 15: Is there a qualified charged employee for monitoring sterilization quality

Discussion:

This study aimed to determine the practices and attitudes of several dental clinics in various cities of Saudi Arabia. We inquired about the current protocol related to infection control followed by several cities and how their auxiliary staff handles the clinical hygiene. It was noted that a large majority of dental clinics have designated dental assistants responsible for sterilization of dental equipment and no cases related to cross-infection were reported, which shows a high quality of infection control protocol carried out by the dental staff. However, a study conducted by Mutters *et al.*, (2014) among the dental professionals including dental assistants in Germany revealed a comparatively low level of attitude towards infection control protocol⁹.

Another investigation by Shooriabi, Gilavand & Emam (2017) aimed to determine the infection control protocols level by the dental assistants in Iran. They reported a lower level of attitude and practice when it came to maintaining proper hygiene when working in clinical settings¹⁰. They also reported the difference in attitudes and practices among assistants working in private as well as public hospitals or clinics. To which they observed a significantly higher level of awareness and attitude of private workers then it comes to maintaining cleanliness and infection control protocol. However, no such comparison was made in our study as we focused on general including both private and public practices in each city of Saudi Arabia and the overall practice was found to be higher among Saudi dental assistants.

It can be noted from the findings that the majority of cities do not have highly qualified dental assistants registered to the local health administration centers. They reported having less than 10 qualified dental assistants in most of the cities, which shows a lack of emphasis on the credentialling of dental assistants. On the other hand, the United States has been training their dental assistants with a minimum of bachelor’s degrees for the last two decades. Their credentialling including licensing and certifications have an important role in ensuring high-quality dental assisting employments in the private as well as public sector (Kracher *et al.*, 2017).

Conclusion:

- Overall there is a satisfactory outcome of infection control protocol as far as major cities of Saudi Arabia are concerned.
- There is a need of recruiting qualified dental assistants in all cities as there is a difference among several cities.

References

1. Arif Z, Butt SA, Pirvani M, Shaikh AA, Niaz AT, Khan S. Knowledge, attitude and practice regarding infection control procedures among dentists of Karachi. *Journal of Advances in Medicine and Medical Research*. 2019 Sep 27;1-7.
2. Asgari I, Soltani S, Sadeghi SM. Effects of Iron Products on Decay, Tooth Microhardness, and Dental Discoloration: A Systematic Review. *Archives of Pharmacy Practice*. 2020 Jan 1;1:60.
3. Alanazi MH, Barnawi NI, Almohaimel SA, Almutairi MA, Alanezi OK, Qureshi LW, Sangoura SI, Alkholeef FJ, Shahadah RF. Evaluation of Dental Pulp Testing: Simple Literature Review. *Archives of Pharmacy Practice*. 2019 Jul 1;10(3):37-40.
4. Kharalampos M, Put VA, Tarasenko SV, Reshetov IV. Comprehensive patient rehabilitation while performing immediate dental implant placement with the use of information-wave therapy (literature overview). *Journal of Advanced Pharmacy Education & Research* | Jan-Mar. 2020;10(4).

5. Bulgakova AI, Vasilyeva NA, Vasilyev EA. The clinical and immunological rationale for the use of prolonged action dental ointment in periodontology. *Journal of Advanced Pharmacy Education & Research* | Oct-Dec. 2019;9(4).
6. Ch AN, Usman N, Kiran S, Zahra T, Khalid H, Akhtar MU. Cross infection control in dental institutions. *Pakistan Oral & Dental Journal*. 2018;38(4):419-22.
7. Kracher C, Breen C, McMahon K, Gagliardi L, Miyasaki C, Landsberg K, Reed C. The evolution of the dental assisting profession. *Journal of Dental Education*. 2017 Sep;81(9):eS30-7.
8. Mandourh MS, Alhomaiddhi NR, Fatani NH, Alsharif AS, Ujaimi GK, Khan GM. Awareness and implementation of infection control measures in private dental clinics, Makkah, Saudi Arabia. *International Journal of Infection control*. 2017;13(1):1-4.
9. Mutters, N.T., Hägele, U., Hagenfeld, D., Hellwig, E., and Frank, U., 2014. Compliance with infection control practices in a university hospital dental clinic. *GMS hygiene and infection control*, 9(3), pp 1-5.
10. Shooriabi M, Gilavand A, Emam SA. Evaluating the awareness and performance ratio of dental assistants working in dentistry centers of the city of Ahvaz in Southwest Iran, about infection control. *Indo American Journal of pharmaceutical Sciences*. 2017 Sep 1;4(9):2959-67.

Corresponding Author

Shahzeb Hasan Ansari

Faculty Preventive Dentistry, Riyadh Elm University, Saudi Arabia.

E-Mail: shahzebhasan @ riyadh.edu.sa