

## Brief Communication

# Knowledge of the General Dentists of Kermanshah about the Principles of Infection Control in 2012

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## Abstract

The principles of infection control should be seriously taken into account by the dentists to prevent the spread of infectious diseases and the consequent risks. The aim of the present study was to determine the knowledge of the general dentists of Kermanshah about the principles of infection control in 2012. This descriptive cross-sectional study was carried out on 95 general dentists in Kermanshah using a self-administered questionnaire. Data were analyzed by SPSS (version 20). The mean of the general knowledge of the dentists was  $15.9 \pm 2.3$ . The mean of the knowledge of the principles of individual infection control was  $9.3 \pm 1.7$  out of 12. It was, however,  $6.5 \pm 1.1$  out of 8 for the knowledge of the principles of infection control of medical equipment. There were no statistical significant difference between the general knowledge of the dentists and gender ( $P=0.263$ ) and work experience ( $P=0.016$ ,  $r=-0.25$ ). The general dentists of Kermanshah had good knowledge about the principles of infection control.

**Keywords:** Dentistry, Infection control, Health knowledge, Educational status

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## Introduction

It is common to become afflicted with infectious diseases during dental therapies (1, 2). Therefore, it is necessary to take preventive measures to stop the spread of the infection. Most of the staff in dental offices disregards the potential risks resulting from the saliva and blood during the treatment. Ignoring the precautions and preventive measures exposes the dentists, assistants, patients and even their families to diseases (3, 4). Esfahani et al. (5) investigated the knowledge, attitude and performance of the students of dentistry in Qazvin about the principles of infection control and indicated that from 122 students, (88.5% used protective eyewear, 96.5% used disposable glass, 85% used mask, 92% used suction cover, 97.3% used light handle cover, and 75.5%

used disposable cover for unit). Also, Singh et al. (6) reported that using face shield, gloves, protective eyewear and gown, as the criteria for standard infection control, were only seen in two students of dentistry in India.

Because of the risk of infection spread in dental therapies, dentists have to seriously take the principles of infection control into consideration to prevent the spread of infectious diseases and the consequent risks and costs. The present study was conducted to examine the knowledge of the general dentists of Kermanshah about the principles of infection control in 2012.

## Methods

In this descriptive cross-sectional study, the statistical society included 95 general dentists of Kermanshah owning dental offices in 2012 that were selected using simple random sampling. To collect the data, a self-administered questionnaire covering all the purposes of the study was applied, which was formulated using the books, articles and related resources as well as the viewpoints of five faculty members. The validity of the questionnaire was determined using content validity. To assess the reliability of the questionnaire, however, test-retest method was used, so that the questionnaire was completed by 20 dentists and two weeks later the same participants completed the questionnaire again. Spearman correlation coefficient of 91% was obtained for the questions before and after two weeks.

The questionnaires were given to the dentists. If a dentist was not interested in cooperation, another dentist was randomly selected and replaced. The questionnaire comprised of questions about demographic information, work experience, 20 questions about the principles of infection control including 12 questions about the principles of individual infection control and 8 questions about the principles of infection control of medical equipment. The questions included instances like preparing the medical history of the patients before treatment, knowledge of how to properly sterilize the files, piezo-reamers, gates-gliddens, ultrasonic scaler, using proper substance to sterilize the tools, how and when to sterilize the injection syringe, using plastic cover for light-cure machine, using separate examination set for each patient, flashing the high and light speed handpieces before and after work, when to change the suction cover, light handle cover, how to sterilize the protective eyewear or shield, how to perform needle recapping, how to collect and dispose of needles and sharp instruments, how to sterilize the casts and trays, how to sterilize radiographic films before placing them into processing solutions, and the kind of cover for the radiographic film to give to the patient.

Data were analyzed by SPSS (version 20) using descriptive statistics and Man-Whitney and Spearman correlation coefficient tests. P-value<0.05 was considered significant.

## Results

In the present study, 95 general dentists of Kermanshah were studied; 61 (64.2%) of them were male and the rest were female. The means of age and work experience of the participants were  $39.9\pm 6.4$  and  $11.7\pm 5.7$ , respectively. The mean of the general knowledge of the dentists was

$15.9\pm 2.33$  and the means for the principles of the individual infection control and the principles of the infection control of the medical equipment were  $9.3\pm 1.7$  and  $6.5\pm 1.1$ , respectively.

The findings showed no significant difference between gender and knowledge of the principles of infection control ( $P=0.263$ ). Also, no significant difference was found between gender and knowledge of the principles of individual infection control ( $P=0.363$ ) and knowledge of the principles of infection control of the medical equipment ( $P=0.23$ ). However, there was a significant correlation between work experience and general knowledge ( $P=0.0126$ ,  $r=-0.25$ ), between work experience and knowledge of principles of individual infection control ( $P=0.002$ ,  $r=-0.3$ ) and between work experience and knowledge of principles of the infection control of the medical equipment ( $P=0.029$ ,  $r=-0.226$ ).

## Discussion

The general dentists of Kermanshah were acceptably aware of the principles of infection control. Al-Omari and Al-Dwairi (7) indicated that 18% of the working dentists in private dental clinics of Ibrid in Jordan sterilized the casts before sending them to dental laboratory. Yengopal et al. (8) reported that about 46.3% of the private dentists of Durban in South Africa did not sterilize the casts before sending them to laboratory.

In this study, 50.6% of the participants used safety box or autoclave to dispose of the needles and sharp instruments. Also, all the dentists had sufficient knowledge about how to wash and sterilize the endodontic files, gates-gliddens and piezo-reamers. According to the findings of Esfahani et al. 94.7% of the dentists put needles and sharp tools in unbreakable and penetration-resistant containers, 68.1% sterilized the injection syringe to disinfect it and 81.4% sterilized the endodontic files, gates-gliddens and piezo-reamers after treating the patient (5).

In addition, Al-Rabeah and Moamed (9) reported that around 56% of the dentists working in private offices in Riyadh kept used needles and sharp instruments in special containers. One of the significant principles in infection control is appropriate disposal of needles and sharp instruments, because the medical waste often contains the materials and instruments contaminated with the patient's saliva and blood and have the potential to transfer the microbial elements. Thus, medical waste should be isolated from other common waste and be kept and disposed of in the packages with special imprints of contaminated waste (2, 10, 11).

Furthermore, the findings of the present study showed that 84.2% of the participants in Kermanshah knew how to wash and sterilize the protective eyewear and shield appropriately and 96.8% used disposable glass for physiological saline. In line with these findings, 90.6% of the dentists owning private offices in Riyadh used face shield (9). Further, 84.2% of the students of dentistry in Brazil used protective glasses (12). In addition, Al-Dwairi et al. (7) reported that 35% and 40% of the dental technicians working in dental offices in Jordan used face shield and protective glasses, respectively.

It is very important to increase the general knowledge of the dentists and the dental team to observe the principles of infection control and prevent the spread of diseases in society. It seems that regular and mandatory retraining and educational courses are effective in this regard. Certainly, a safer environment can be provided for the working personnel in dental centers as well as for patients by taking precautions such as disinfection processes, using sterile gloves, masks, chair covers, light handle cover, protective eyewear, gown, disinfectants, waste disposal, sterilization and disinfection machines with higher safety and employing dental assistants in health care centers. Running retraining courses and holding academic workshops about infection control can enhance the knowledge of the dentists. To promote the health system and observe the principles of infection control, it is recommended that a booklet containing up-to-date materials about the principles of infection control be developed for the dental personnel and professionals.

## Conclusion

General dentists of Kermanshah had good knowledge about the principles of infection control.

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