

Evaluation of practice of cross infection control for dental impressions among laboratory technicians and prosthodontists in KSA

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Abstract

The purpose of the present study was to assess the current practice of cross infection control of dental impressions in governmental and private dental labs and prosthodontic clinics of MoH, Al-Qassim, KSA, evaluating how dentists are communicating with lab personnel about impression disinfection and detecting awareness about infection control practices in dental laboratories. This study was a cross-sectional study using self-administered anonymous questionnaires. The sample included 50 dental technicians and 55 dentists in two cities. Technicians and prosthodontists were subjected to questionnaires consisting of 25 and 13 questions, respectively. Forty six questionnaires were completed for technicians and 48 for prosthodontists. More than 60.00% of technicians knew that impressions have been disinfected and 56.25% of dentists notified technicians that impressions have already been disinfected. About 64.00% of technicians had an agreed protocol between lab and clinic, and 40.74% of prosthodontists notified technicians through notes on impression bags. About 61.00% reported that all technicians in lab were vaccinated for HBV. Only 6.40% of technicians apply all protective precautions when receiving impressions. Fifty percent of the prosthodontists aren't sure that technicians disinfect impressions before pouring. About 65.00% of technicians feel that laboratories are adequately instructed for disinfection techniques of different impression materials and on contrary, 66.67% of prosthodontists didn't feel that. Lack of communication between prosthodontists and their dental technicians was noticeable. Significant nonconformity of view between dental technicians and prosthodontics was reported.

Keywords: Cross infection and prevention and control; Dental impression materials; Dental materials and microbiology; Medical laboratory personnel and education; dentists

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Background

The prominence of infection control policy in dentistry that occurred during the last two decades has now give rise to remarkable approaches to prevention of disease spread in the dental office.¹ Nevertheless, contrary to the practice in dental clinics and surgical operatories where infection control processes are strictly recommended, implemented and structured, the dental laboratories are usually disregarded when planning effective infection and exposure control measures.²

This comprises hazards to the safety of dental technicians, who may get pathogenic microorganisms from impressions and other contaminated items.^{3,4} Cross infection may also happen between dental staff and patients from contaminated items transmitted from the dental laboratories to dental clinics.⁵

It was reported that over 60% of the prostheses transferred to clinics from laboratories are contaminated with pathogenic microorganisms emerging in the oral cavity of other patients.⁶⁻⁸ Dental impressions can become contaminated with microorganisms from patient's saliva and blood, which then cross-infects stone casts poured against them.⁹ Dental laboratory technicians are specifically susceptible to microbial cross-contamination from the elastomeric impressions they receive from dental offices.^{8,9} Casts poured from impressions can also accommodate infectious microorganisms that can be disseminated throughout the laboratory when the casts or dies are trimmed.¹⁰

A number of studies indicated that pathogenic microorganisms were recovered from casts attained from contaminated impressions.¹⁰⁻¹² So, the method to prevent this from happening is to immerse the casts or spraying them with disinfecting solutions.¹³⁻¹⁵ Also, chemical disinfectants can be supplemented instantly to the dental stone.^{16,17} However, disinfecting the contaminated dental impressions and other dental items leaving the immediate chair side area is an ideal way to control cross-contamination.¹⁷

Efficient communication and coordination between the dental laboratory and dental clinic will confirm that appropriate cleaning and disinfection practices are achieved either in the dental office or laboratory so that disinfection is secured.¹⁸

In recent years, there have been rising concerns about the disinfection of dental impressions. This is attributed to the growing awareness of viral diseases including Viral Hepatitis B and C (HBV and HCV), Human Immuno Deficiency Virus (HIV) and Severe Acute Respiratory Syndrome (SARS).¹⁹

So, it is essential that all dental laboratory technicians must have a fundamental knowledge and understanding of infection transmission through the dental labs and how to avoid the transmission of infectious agents from dental impressions. Furthermore, they must be properly evaluated for the exposure risk they face from blood-borne pathogens.²⁰

Considering the non-availability of data about cross infection control procedures of dental impressions performed in both governmental and private dental labs and prosthodontic clinics in Al-Qassim Province, this study was conducted to assess the current practice of cross infection control of dental impressions, also to evaluate how dentists are communicating with lab personnel about impression disinfection, and finally to detect the awareness about infection control practices in dental laboratories.

Material and Methods

The present cross-sectional study involved distribution of pre-tested self-administered questionnaires to 50 dental technicians and 55 dentists belonging to MoH in Al-Qassim Province. The technicians' questionnaire consisted of 25 questions about their knowledge of different infection control procedures applied in the dental laboratories, the actual methods used for disinfecting the dental impressions and the communication between dentists and dental technicians with regard to the application of infection control programs in the dental labs.

The questionnaire administered to prosthodontists included 13 questions aiming to collect information about the methods used to disinfect or sterilise the impression materials used for preliminary/working impression, the level of communication between dental clinic and lab as well as if the dentists feel that dental labs are adequately instructed for the disinfection techniques for different impression materials.

The questionnaire included an emphasis on the anonymity of the respondents. The returned questionnaires were reviewed for completeness. Forty six completed questionnaires for dental technicians and forty eight for prosthodontists were subjected to statistical analysis.

Results

In the present study 46 dental technicians and 48 dentists completed their respective questionnaires, yielding a response rate of 92.00% and 87.27%, respectively.

Table I reveals the frequency of impression/casts received in the dental labs per week. It was found that 54.35% of the studied labs received 5 – 10 impressions or casts per week while the percentage of those receiving more than 15 impressions/casts was 28.26%. The study revealed that 60.87% of the technicians knew that the impressions they received from dental

clinics have already been disinfected whereas 56.25% of the dentists notified their laboratory technicians about this practice (Table II).

Table III portrays the method of knowing whether or not the impressions have been properly disinfected before receiving/sending to the lab. The majority of technicians (64.29%) stated that there is an agreed protocol between the lab and the dental office. On the other hand, 40.74% of the studied group of prosthodontists said that they notify the technicians through notes on the impression bags.

Table IV shows the awareness of dental technicians about different methods of disinfecting impressions. It was reported that liquid disinfectant immersion constituted the most common technique used by the prosthodontists (36.96%) and the majority of them (71.74%) disinfect impressions for ten minutes. Moreover, 82.61% of the technicians stated that they disinfect alginate impressions by themselves. Among those who disinfect alginate impressions 39.47% rinse the impressions under running water and spray them with disinfectant. Asking about the disinfection of rubber base impressions revealed that 76.09% of the technicians made this process. Subsequently 42.86% of the technicians rinse the impressions under running water and immerse them in disinfectant. Ten minutes was the duration mostly accepted by the technicians who immerse the rubber base impressions in a disinfectant (47.37%).

Table I. Frequency of impressions/casts received in the dental labs per week

Variable	Frequency	Percent
Less than 5	3	6.52
5-10	25	54.35
11-15	5	10.87
More than 15	13	28.26
Total	46	100

Table II. Impression disinfection before receiving/sending to the dental laboratory

Variable	Impression disinfection before receiving/sending to the dental laboratory		
	Yes	No	Total
Do you know if the impressions have been properly disinfected before you receive them from prosthodontic's clinics?	60.87%	39.13%	100%
Do you notify your laboratory technician that your preliminary/working impression has already been disinfected?	56.25%	43.75%	100%
Total	58.51%	41.49%	100%

Table III. How to know if the impressions have been properly disinfected before receiving/sending to the dental laboratory

Variable	If Yes how			Total
	Noted on	Verbal confirmation by dental office	Agreed protocol between lab and dental office	
Dental Technicians	28.57%	7.14%	64.29%	100%
Dentists	40.74%	29.63%	29.63%	100%
Total	34.55%	18.18%	47.27%	100%

Regarding the application of infection control measures in the dental labs, 60.87% of the studied group reported that all technicians in the labs had been vaccinated for HBV, whereas 17.39% of the technicians stated that none of them had been vaccinated for HBV. For the laboratory work surfaces, 45.65% of the technicians stated that they clean and disinfect the work surfaces, among them 50.00% used sodium hypochlorite as a disinfectant, and 52.17% cleaned the hand instruments such as spatulas, mixing bowl and knives only with water between their uses. However, 47.83% of the studied group stated that they clean and disinfect the laboratory hand instruments, 59.09% of them used sodium hypochlorite as a disinfectant and the majority of them (54.55%) used it for ten minutes. With regard to the rag wheels, brushes and acrylic burs, the majority of the studied group of technicians revealed that they cleaned them only with water after their use (47.83%). On the other hand, 28.26% of them said that they heat sterilise them using autoclave (92.31%) for sixty minutes (61.54%), and all the technicians who stated that they disinfect these items (6.52%) use sodium hypochlorite for disinfection for thirty minutes (66.67%). Responding to a question about the precautions they take when receiving the impressions or any work delivered from the clinic, only 6.40% of the technicians reported that they take all precautions in the form of wearing clinic attire, protective eyewear, mask and protective gloves. Whereas the majority of the technicians (28.80%) reported that they use protective eyewear combined with other means of personal protective equipment (PPE). Furthermore, 15.20% of the studied group of technicians illustrated that they use thermal protection gloves mutually with additional PPE items (Table V).

Table VI portrays the methods applied by the prosthodontists for pouring and rinsing the impressions and their view about the dental technicians' decontamination of preliminary/working impressions. It was found that more than half of the studied group of prosthodontists didn't pour the preliminary/working impressions in their clinics. However, the vast majority (95.83%) of them routinely rinses the preliminary/working impression with tap water and 97.92% of them disinfected the impressions before sending them to the laboratory. Furthermore, 46.81% of the prosthodontists reported that they rinse the preliminary/working impressions under running water then spray them with disinfectant. Only 35.56% of the prosthodontists did disinfection for the preliminary/working impressions for ten minutes. When asked whether they knew that their laboratory technicians disinfect the preliminary/working impression before pouring, 35.42% of prosthodontists replied positively while 50.00% of them stated that they are not sure that the technicians perform this procedure. Among those who replied positively, 41.18% said that they first clean the impressions under running water, followed by spraying and immersion in disinfectant for ten minutes (70.59%). Only 35.42% of the prosthodontists recommended an autoclavable impression material in their practice, among them 47.06% registered that the needed time of sterilisation for the autoclavable impression materials is thirty minutes.

When the dental technicians and the prosthodontists were asked if they think that dental laboratories are adequately instructed for the disinfection techniques of different impression materials, the majority of technicians (65.22%) reported that they consider

that they are adequately instructed, while the prosthodontists (66.67%) did not feel satisfied with the adequacy of the said instructions (Table VII).

Discussion

Nowadays, in the perspective of universal precaution, it is important to consider impressions and stones as an

outstanding risk of contamination.²¹ Impressions have been considered the principal source of infections in dental laboratories.²² Disinfection protocols have been recommended to prevent technicians from exposure to infectious diseases.²³ Cross contamination possibility between patients and dental office and/or laboratory personnel is greater than contamination

Table IV. Awareness of Dental Technicians about proper methods of disinfection of impressions

Variable		Frequency	Percent
What types of products and techniques are typically used by the prosthodontist? (N=46)	Liquid disinfectant spray	7	15.22
	Liquid disinfectant immersion	17	36.96
	Sodium hypochlorite	5	10.87
	Soap & water	1	2.17
	Liquid disinfectant spray & immersion	3	6.52
	Liquid disinfectant spray & Sodium hypochlorite	2	4.35
	Liquid disinfectant spray & Soap & water	6	13.04
	Liquid disinfectant spray & Soap & water	5	10.87
Approximately what is the typical duration of disinfecting impressions by the prosthodontist before you receive them? (N=46)	One minute	4	8.70
	Ten minutes	33	71.74
	Thirty minutes	8	17.39
	Sixty minutes	1	2.17
Do you disinfect alginate impressions? (N=46)	Yes	38	82.61
	No	8	17.39
If "Yes", what method do you use for alginate impressions disinfection? (N=38)	Spray with disinfectant	11	28.95
	Immerse in disinfectant	1	2.63
	Spray and immerse with disinfectant	2	5.26
	Rinse under running water & Spray with disinfectant	15	39.47
	Rinse under running water & Immerse in disinfectant	9	23.68
Do you disinfect rubber base impressions? (N=46)	Yes	35	76.09
	No	11	23.91
If "Yes", what method do you use for rubber base impressions disinfection? (N=35)	Spray with disinfectant	3	8.57
	Immerse in disinfectant	3	8.57
	Spray and immerse with disinfectant	1	2.86
	Rinse under running water & Spray with disinfectant	13	37.14
	Rinse under running water & Immerse in disinfectant	15	42.86
If you immerse rubber base impressions in a disinfectant, what is the duration of immersion? (N=19)	One minute	2	10.53
	Ten minutes	9	47.37
	Thirty minutes	7	36.84
	Sixty minutes	1	5.26

Table V. Application of infection control measures in the dental lab

Variable		Frequency	Percent
How many are vaccinated for Hepatitis B? (N=46)	1 - 2	1	2.17
	3 - 5	9	19.57
	All	28	60.87
	None	8	17.39
How do you deal with the laboratory work surfaces after work is completed? (N=46)	cleaned	20	43.48
	disinfected	5	10.87
	cleaned and disinfected	21	45.65
If you disinfect surfaces, what type of disinfectant? (N=26)	Quaternary ammonium	5	19.23
	Sodium hypochlorite	13	50.00
	Other (Dettol, Soap & Water)	2	7.69
	Sodium hypochlorite & Phenolic	6	23.08
How do you deal with laboratory hand instruments such as spatulas, mixing bowls, knives, wax carvers, etc. between their use? (N=46)	cleaned only with water	24	52.17
	cleaned and disinfected	22	47.83
If you disinfect, what type of disinfectant? (N=22)	Glutaraldehyde	3	13.64
	Quaternary ammonium	3	13.64
	Sodium hypochlorite	13	59.09
	Phenolic	1	4.55
	Iodophor & Sodium hypochlorite	1	4.55
	Sodium hypochlorite & Phenolic	1	4.55
For how long do you disinfect? (N=22)	One minute	1	4.55
	Ten minutes	12	54.55
	Thirty minutes	6	27.27
	Sixty minutes	3	13.64
How do you deal with rag wheels, brushes, acrylic burs, etc. after their use? (N=46)	cleaned only with water	22	47.83
	disinfected	3	6.52
	heat sterilized	13	28.26
	discarded	8	17.39
If you sterilize, what is the method of sterilization? (N=13)	Autoclave	12	92.31
	Dry heat oven	1	7.69
For how long do you sterilize? (N=13)	Thirty minutes	5	38.46
	Sixty minutes	8	61.54
If you disinfect, what type of disinfectant? (N=3)	Sodium hypochlorite	3	100
For how long do you disinfect? (N=3)	One minute	1	33.33
	Thirty minutes	2	66.67
What precautions you take when receiving the impressions or any work delivered from the clinic? (Multiple Response) (N of Responses=125)	Clinic attire	35	28.00
	Protective eyewear	36	28.80
	Mask	27	21.6
	Thermal protection gloves	19	15.20
	All Precautions	8	6.40

Table VI. Methods applied by the prosthodontists for pouring and rinsing impressions & their opinion about dental technicians decontamination of preliminary/working impressions

Variable		Frequency	Percent
Do you routinely pour the preliminary/working impression in your clinic? (N=48)	Yes	22	45.83
	No	26	54.17
Do you routinely rinse your preliminary/working impression with tap water before sent to the laboratory? (N=48)	Yes	46	95.83
	No	2	4.17
Do you routinely disinfect your preliminary/working impression prior to sending to laboratory? (N=48)	Yes	47	97.92
	No	1	2.08
If "Yes", how would you disinfect your preliminary/working impression? (N=47)	Spray with disinfectant	11	23.40
	Spray and immerse with disinfectant	2	4.26
	Rinse under running water & Spray with disinfectant	22	46.81
	Rinse under running water & Spray and immerse with disinfectant	12	25.53
For how long do you disinfect? (N=45)	One minute	23	51.11
	Ten minutes	16	35.56
	Thirty minutes	6	13.33
Does your laboratory technician disinfect your preliminary/working impression before pouring? (N=48)	Yes	17	35.42
	No	7	14.58
	Not Sure	24	50.00
If "Yes", what method does your laboratory technician use? (N=17)	Spray with disinfectant	3	17.65
	Immerse in disinfectant	2	11.76
	Spray and immerse with disinfectant	3	17.65
	Rinse under running water and Spray with disinfectant	2	11.76
	Rinse under running water, Spray and immerse with disinfectant	7	41.18
For how long do they disinfect? (N=17)	One minute	3	17.65
	Ten minutes	12	70.59
	Thirty minutes	1	5.88
	Sixty minutes	1	5.88
Would an autoclavable impression material be desirable in your practice? (N=48)	Yes	17	35.42
If "Yes", for how long do you would sterilize? (N=17)	Thirty minutes	8	47.06
	Sixty minutes	6	35.29
	Other	3	17.65

Table VI. Methods applied by the prosthodontists for pouring and rinsing impressions & their opinion about dental technicians decontamination of preliminary/working impressions

Variable	Do you feel that dental laboratories are adequately instructed as to the disinfection techniques for different impression materials?		
	Yes	No	Total
Dental Technicians	65.22%	34.78%	100%
Dentists	33.33%	66.67%	100%
Total	48.94%	51.06%	100%

risks between dentist and patients or from one patient to another.²⁴ As such, the creation of infection control procedures at dental offices and prosthetic laboratories may be a convinced step to evade transmission of microorganisms.²⁵

The rate of response to the questionnaires in the present study among dental technicians and dentists was high (92.00% and 87.27%, respectively) comparing to previous study.²⁶ This may reflect the heightened concerns of professionals about the issue of infection control in dental laboratories and about how to produce a safe work environment for the dental technicians.

The results of the current study revealed that 60.87% of the dental technicians reported that they know if the impressions they received from prosthodontic's clinics have been properly disinfected, and 56.25% of the studied group of dentists notified their laboratory technicians that the preliminary/working impression has already been disinfected. Notwithstanding this, the results of this study were equivalent, if not better than that detected in another study carried out in the United Kingdom where only 30% of the technicians registered that they receive known non-disinfected work from the dental surgery clinics.²⁷ Also, these findings are higher than that found in a previous survey conducted in US, where 44% of 400 US dental laboratory technicians affirmed that they knew if the impressions they received had been disinfected in the dental clinics.²⁸ It may be helpful for dental offices to initiate a standardised labelling system for all impressions to be sent to dental laboratories.²⁸ In the current work more than 60% of dental technicians mentioned that they had an agreed protocol between the lab and the dental office to inform

them that the received impressions have been properly disinfected in advance. While 40.74% of the dentists registered that they set a notation, sticker or label on the impression bag signifying how the impression was disinfected. Both approaches are the right, as verbal communication only may be insufficient to instruct the technicians for specific infection control measures to be taken in different cases.

Additionally, communication between prosthodontists and their dental laboratories concerning particular disinfection practices could eradicate a potential problem. In this context, asking the dental technicians whether they know the types of products and techniques their dentists used to disinfect the impressions, only 36.96% of them revealed that their prosthodontists used liquid disinfectants in the form of immersion technique and 71.74% of this group said that the dentists immerse the impressions for 10 minutes in the disinfectant. These results are in line with that of Kugel *et al.*,²⁸ where they reported that between the laboratory directors who recorded that they have data about disinfection procedures, 34% stated that immersion habitually is used.

Furthermore, more than 82% of the technicians registered that they personally disinfect the alginate impressions by rinsing under running water combined with either spraying with disinfectant or immersing the impressions in a disinfectant solution for 10 minutes. In regard to the use of rubber base impression materials, 76.09% of the technicians stated that they use this material, and they disinfect these impressions as in case of the alginate impressions, but concerning the duration of immersion of the impressions in the disinfectant solution, it ranges between 10 and 30

minutes. The former studies on the effect of different disinfectants on certain impression materials revealed that immersion durations of as short as 5-10 minutes and as long as 30-60 minutes will not affect factors as accuracy and surface detail of the impressions.²⁹⁻³¹

Occupational infection of the dental laboratory technician with HBV has been mentioned in the dental literature.³² More than 60% of the technicians who contributed in the study under discussion stated that all technicians in the dental lab had received an HBV vaccination; this is higher than previous studies where only 10%³³ and 24.4%²⁶ of the technicians had received an HBV vaccination. However the cause of concern is that in the present study 17.39% of the technicians didn't receive vaccination for HBV, this may render them susceptible to infection with HBV. Centers for Disease control and Prevention (CDC) has recommended that work surfaces and equipment should be cleaned and decontaminated with an appropriate liquid chemical germicide after completion of work activities.^{34,35} The current study found that 45.65% of the technicians clean and disinfect the work surfaces of their dental labs after completing their work, and the majority of them used sodium hypochlorite as a disinfectant. Moreover, it has been advocated that all laboratory items as burs, brushes, rag wheels, knives and other laboratory tools that are used should be heat-sterilised, disinfected between patients, or discarded.^{36,37} The results of the current study revealed that the study group of technicians followed the American Dental Association (ADA) regulations, where 47.83% stated that they clean and disinfect the laboratory hand instruments and 59.09% of them confirmed that they use sodium hypochlorite as a disinfectant solution for ten minutes. Additionally, the findings of the present study disclosed that only 28.26% of the participating technicians follow ADA regulations in regard to heat sterilisation of the rag wheels, brushes and acrylic burs; as 92.31% of them use autoclaves, and 61.54% of autoclave users use it for sixty minutes. Dental laboratory technicians are at risk of cross-contamination from the clinical items they receive and handle from dental offices.³⁸ The usage of PPE is imperative. In the current work, only 6.40% of the contributing technicians put on all the recommended PPE in the form of clinic attire, protective eyewear, mask and protective gloves. Besides, 28.8% of the technicians used protective eyewear upon receiving

the impressions or any work delivered from the dental office. This result is less than that what was found in a previous study in which 350% of dental technicians reported that they used protective eyeglasses.³³ Moreover, 15.2% of the technicians wore protective gloves combined with other PPEs. These results are in accord with previous work conducted on the dental technicians in Jordan where 12% reported that they put on gloves when handling dental work received and opened in the laboratory or any work carried out from the dental office.²⁷

The ADA guidelines declared that impressions should be rinsed to eliminate saliva, blood and debris and then disinfected before being sent to the laboratory.²⁰ So, cleaning and rinsing an impression under running water to remove enormously visible contaminants should be a habitual practice and it correspondingly get rid of up to 90% of microorganisms.³⁹ An overwhelming majority of the participating dentists routinely rinsed and disinfected the preliminary/working impression under tap water prior to pouring or before being sent to the laboratory. These results are in accord with that of Pang *et al.*,⁴⁰ where they reported that 93% of Hong Kong dentists rinse their study and working alginate impressions under running water before pouring. However, only 48% of the respondents in that study also carried out some form of prior disinfection procedure. The communication between the prosthodontists and their laboratory technicians in relation to particular disinfection procedures employed could be helpful in preventing cross-infection. In this perspective, 50% of the studied group of prosthodontists bring to light that they are not sure if their laboratory technicians disinfect their preliminary/working impression before pouring. Similarly it may be useful for laboratories to notify their dentist customers in writing of how they routinely conduct disinfection in the laboratory so that their efforts can be coordinated to certain extent.²⁸ On the other hand, unpredictably 64.58% of the participating dentists pointed out that they didn't prefer an autoclavable impression material in their practice. These findings are in contrast with that of Pang *et al.*,⁴⁰ where they found that 50% of the surveyed dentists indicated that an autoclavable impression material would be appropriate in their practice.

Concerning the view of dental technicians and the prosthodontists about the adequacy of instructions of

the dental laboratories for disinfection techniques of different impression materials, there was a statistically divergence of opinion between them where the majority of technicians (65.22%) felt that they are adequately instructed. On the other hand, most of the prosthodontists sensed that dental technicians are not sufficiently instructed for the disinfection techniques of different impression materials. In this situation, it may be helpful for dental laboratories as well as dental offices to follow the ADA recommendations^{5,36,41} about how specific impression materials should best be disinfected to balance the goals of safety and accuracy.

The limitation of this research includes the fact that the sample size was too small; the reason was the lack of cooperation from some prosthodontic clinics and laboratories to participate in the study. Thus the results of this work cannot be equally extrapolated for all prosthodontists and dental technicians, as more effort has been directed towards infection control in the last years.

Conclusion

In the limitations of this study and based on the findings, it can be concluded that moderate communication between dental laboratory technicians and prosthodontists was reported concerning disinfection of impressions. Furthermore, the majority of dental technicians reported that there is an agreed protocol between both the dental laboratory and the dental office, and the prosthodontists affirmed that they notify the technicians by means of notes on the impression bags.

The vast majority of prosthodontists participating in the study routinely rinses and disinfects the preliminary/working impressions prior to sending them to the dental laboratory.

The liquid disinfectant immersion comprises the most common technique used by the prosthodontists for proper disinfection of impressions and the procedure performed for ten minutes.

A disturbing finding of the study is that some of the dental labs are having some technicians who have not been vaccinated for HBV. Besides, the study exposed lack of compliance of the technicians to the application of infection control procedures in the dental laboratories.

The present results indicated that most dentists didn't pour the preliminary/working impressions in their clinics. Lack of communication between the prosthodontists and their technicians was noticeable as the dentists are not sure whether the technicians disinfect the preliminary/working impressions before pouring. Autoclavable impression materials are not suggested by the majority of dentists.

Unexpectedly, a significant nonconformity of view between the dental technicians and prosthodontists with regard to the adequacy of instructions for the dental laboratories for different impression materials was reported.

Recommendations

- Obligatory ongoing infection control education courses for both dental technicians and prosthodontists should be conducted to improve compliance to infection control regulations.
- Standard infection control manuals that include up-to-date recommendations should be circulated to both dental technicians and prosthodontists.
- Dental technicians should inform their prosthodontists in writing about how they normally perform disinfection in the laboratory so that their efforts can be managed properly.
- The students of dental technology should be educated about infection control issue as a component of their curriculum.
- The manufacturers of impression materials must give explicit instructions about disinfectant solutions and techniques that are applicable to their products.
- Considering the limitations of this study, more researches are suggested to be conducted in other areas of Saudi Arabia to provide more comprehensive information about the compliance with recommended infection control programs by dental technicians and prosthodontists.

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