



## Original Research Article

## Infection control in impression making procedures in the dental clinics

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## ABSTRACT

**Aim:** This study aims at investigating the behavior, orientation, attitude and knowledge of dental practitioners towards the infection control in the impression making procedure.

**Materials and Methods:** A questionnaire consisting of 10 questions was designed to assess the details of impression material used and its disinfection. The questionnaire was sent to the dental practitioners of 70 clinics.

**Results:** Out of 110 participants 91.81% sterilized their impression trays before making impressions. 94.54% Practitioners poured their impressions in their clinic. 93.63% practitioners believed in rinsing the impressions before dispatching them to laboratory. 52.27% practitioners disinfected their impressions prior to sending the impressions to the laboratory. 79.09% participants were sure that their laboratory person is disinfecting the impressions before proceeding. 71.81% practitioners believed that immersion of impressions in the disinfectant solution impairs the dimensional stability of impression material. 89.09% believed that cross infection can lead to the life threatening diseases. 93.63% participants used Alginate as the primary impression material. 48.18% practitioners believed in disinfecting the impressions under tap water, 16.36% believed in disinfection using the spray and 9.09% disinfected by immersing impressions in the disinfectant. Only 20.90% participants used the autoclavable special impression material for at risk patients.

**Conclusion:** Still there is lack of knowledge regarding disinfection of the impression and maintaining infection control during the impression making procedure. So an effort should be made to impart thorough knowledge about proper disinfection in the undergraduate and postgraduate curriculum.

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## 1. Introduction

This is purely the responsibility of the dental practitioner to make sure that the impressions have been cleaned and disinfected before sending them to the dental laboratory. It is always good and appreciable to label the disinfected status of the impression for the ease of the laboratory personnel, as the repeated disinfection can hamper the dimensional stability of the material used for making impression.<sup>1</sup>

The impressions which comes in contact with the patient's oral cavity pose a cross infection hazard, together with being a hazard to dental practitioner and the team.<sup>2</sup> Infection control is one of the vastly discussed topic

in dentistry and quoted as the most important part of the dental practice to an extent that no dental health worker should question its necessity.<sup>3</sup>

The dental practitioners stand at high risk of cross infection while treating the patients. This occupationally related potential for disease transmission becomes evident, when the fact cannot be denied that most of the human pathogens have been isolated from secretions of the oral cavity. Also the majority of carriers of the infectious diseases cannot be easily identified. Hepatitis B and AIDS are the diseases of serious outcome and poor prognosis. The increasing awareness has made it mandatory to take necessary precautions to prevent cross contamination.<sup>4</sup>

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Many researchers have shown that there exist numerous infective hazards in dental practice because most of the infections can be transmitted by blood or saliva through direct as well as indirect contact, aerosol, droplets and contaminated surfaces of instruments and equipments.<sup>4</sup>

Many studies in the past have mentioned the importance of infection control of impressions in the general practice. The discussion on infection control in dentistry has given birth to controversies and debates during the last two decades due to the global spread of the HIV infection.<sup>5</sup> The Covid 19 pandemic is also a great cause of concern when it comes to the disinfection in the dental practice.

The surfaces been touched by the human fluids must always be disinfected with a hospital grade disinfectant.<sup>6</sup> The present survey study was done to analyse and investigate the behaviour of the dental practitioners towards infection control in the impression making procedure.

## 2. Materials and Methods

A questionnaire containing 10 questions (Table 1) was designed to assess the details of the disinfection of the impression, including the materials used in the procedure and how the impressions were disinfected. The questionnaire was sent to 70 dental clinics and was supposed to be filled anonymously. The subjects who did not fill the survey questionnaire completely were excluded from the study. 110 participants anonymously completed the questionnaire. Participants were instructed to answer each question as Yes or No and two multiple choice questions.

## 3. Results

The results showed that out of 110 participants 91.81% stated that they sterilize their impression trays before making impressions and 8.18% denied for the same. Most of the practitioners (94.54%) poured their impressions within their clinic premises whereas 5.45% relied on laboratory personnel for the same. 93.63% of practitioners believed in rinsing the impressions before dispatching them to laboratory. 52.27% practitioners disinfected their impressions prior to sending the impressions to the laboratory. 79.09% participants were sure that their laboratory person is disinfecting the impressions before proceeding but 20.90% were not sure and answered No in the questionnaire for the same. 71.81% practitioners believed that immersion of impressions in the disinfectant solution impairs the dimensional stability of impression material. 89.09% believed that cross infection can lead to the life threatening diseases. 93.63% participants used Alginate as the primary impression material. 48.18% practitioners believed in disinfecting the impressions under tap water, 16.36% believed in disinfection using the spray and 9.09% disinfected by immersing in the disinfectant.

**Table 1:** Survey Questionnaire

Question	Yes	No
1. Are your impression trays sterilized before proceeding for impression technique for each case?		
2. Are your impressions poured within the clinic premises?		
3. Are your impressions rinsed with tap water before being sent to the laboratory?		
4. Are you routinely disinfecting your impressions before sending them to the laboratory?		
5. Is your laboratory technician disinfecting your impressions before proceeding?		
6. Immersion in disinfecting solution alters the dimensions of the impression material?		
7. Are you aware about life threatening diseases via cross infection?		
8. Preferable impression material you would routinely like to use for a primary impression?		
• Alginate		
• Silicones		
• Others		
9. Preferable method to disinfect your impression?		
• No disinfection		
• Rinsing with tap water		
• Spray with disinfectant solution		
• Immersion in disinfectant		
10. Do you use special autoclavable impression material for at risk patients?		

Only 20.90% participants used the autoclavable special impression material for at risk patients.

## 4. Discussion

Cross infection control is a matter of prime importance for a dental practitioner and is still a widely neglected issue.<sup>7</sup>

The process of disinfection should be such that it should not alter and affect the dimensions and surface details of the impression and the cast formed from it. Previous studies have proved that the chemical disinfection is the most effective method of reducing the microbial load from impression surface. However the immersion method is reliable when compared to the spray disinfection but it is not the preferable method for hydrocolloids.<sup>7</sup> Also inhalation risk exists with the sprays. The procedure of impression making and its processing constitutes an area of potential infection hence its control is of prime importance to the dentist.<sup>2</sup> This study was conducted to assess the knowledge and practice related to disinfection of the impression.

As per expectation almost all the participants, for study casts used Alginate as an impression material because of its ease to use, low cost and adequate accuracy required for study models. This result was in accordance with the study conducted by Murali et al (2011).<sup>2</sup> Most of the dentists

poured them in the clinic premises, as recommended.

As suggested there exists the impression materials which have been considered autoclavable and recommended to be used in the high risk patients. But as in clinical practice there is a lack of definite means to elicit and verify the status of disease of every patient so, it is best to follow the universal precautions to control the cross infection.<sup>2</sup> This survey study revealed that only 8% of the participants used the special material for high risk patients, also it is recommended that consider all the impressions as high risk in practice.

Rinsing of the impressions under running water for the removal of gross contaminants should be followed routinely to remove the visible saliva, blood and food particles. Also, it removes almost 90% of the microbial load.<sup>2</sup> According to this survey 98% participants rinsed the impressions prior to dispatching them to the laboratory.

Some of the impression materials should not be disinfected again at laboratory once it is disinfected by the dentist as it might lead to dimensional instability. So it is dentist utmost responsibility to notify the lab regarding already disinfected impression to avoid future discrepancies in the casting.<sup>8</sup> 79.09% participants in this study agreed that their laboratory person is disinfecting the received impressions.

The recommended procedure for the disinfection of the impressions is immersion in the 1% sodium hypochlorite solution for at least 10 minutes.<sup>9</sup> Further investigations are required to evaluate the success of the unexplored materials for disinfection purpose, Also there is a lack of comparable and recent studies in the literature regarding the disinfection and more studies are required.

## 5. Conclusion

The present study states that there is a lack of knowledge among the dental practitioners regarding the disinfection of the impression materials. To overcome this scenario there should be conduction of the continuing dental education programs and short courses about infection and infection control.

## 6. Conflict of Interest

None declared.

## 7. Source of Funding

None.

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