

# Knowledge about Cross Infection Procedures among Dentists

Agisha Raaje .P

Saveetha Dental College, Chennai

**Abstract:** *There are many routes by which contamination in the dental surgery can be transmitted from patients to dental health care workers and vice versa. Possibilities of infection transmission from patient to patient, dental surgery to the wider community and from the community to the other patients is also high.(1) Documented cases of transmission of Hepatitis B, HIV and other infectious diseases have been reported in the literature.(2)The emergence of HIV, Hepatitis B and other blood-borne viral infections as a major health problem has increased awareness of infection control procedures in dental practice among both the public and the professionals. HIV and Hepatitis B viruses can be transmitted after needle stick injuries and contact with body secretions(3) and also because many infected patients are unaware of their status or not willing to disclose their disease status to health care workers. Many studies have been undertaken to examine the compliance of dentists' with infection control requirements.(4-6) Thus raised the need to develop infection control recommendation to reduce the risk of transmission of blood borne diseases in health care facilities. These procedures were termed as universal standard precautions which consider all blood and blood contaminated fluids as potentially infectious.(7,8)*

**Keywords:** cross infection procedures

## 1. Introduction

Paramount to the prevention of infectious disease is the strict adherence to universal precautions for all patients.(9)This includes, though not limited to, eye protection with lateral shields, facemask, and protective clothing, which will be laundered on the premises or by appropriate services(10), proper disinfection and sterilisation of the dental care unit and the instruments and regular vaccination of dental healthcare workers.

The aim of this study was to assess the infection control compliance of general dental practitioners and to study the rate of infection transmission among general dental practitioners.

## 2. Materials and Methods

A random sample of 140 dentists was taken. A short pretested questionnaire of 18 questions was given to the dentists. The questionnaire was designed with the aim of collecting information about the key measures of infection control in dental practice, including methods of sterilisation, operatory surface disinfection, use of protective barriers, use of disposables, sharps handling and waste disposal, and the rate of infection transmission seen in the practice of the dentists.

The questionnaire requested respondents to provide demographic data about age, qualification, speciality, practice and years of practice. The

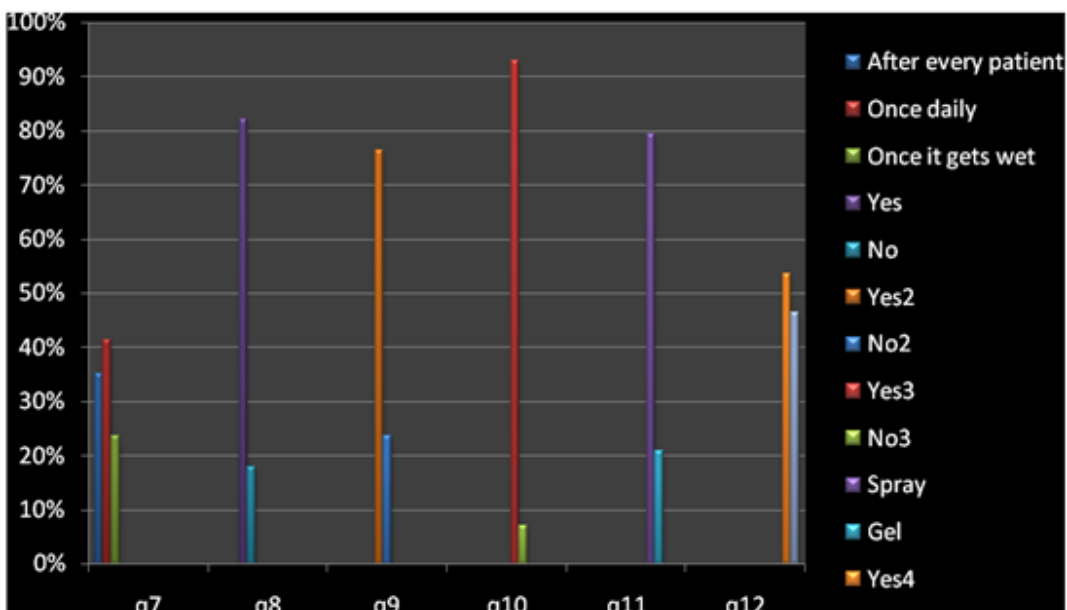
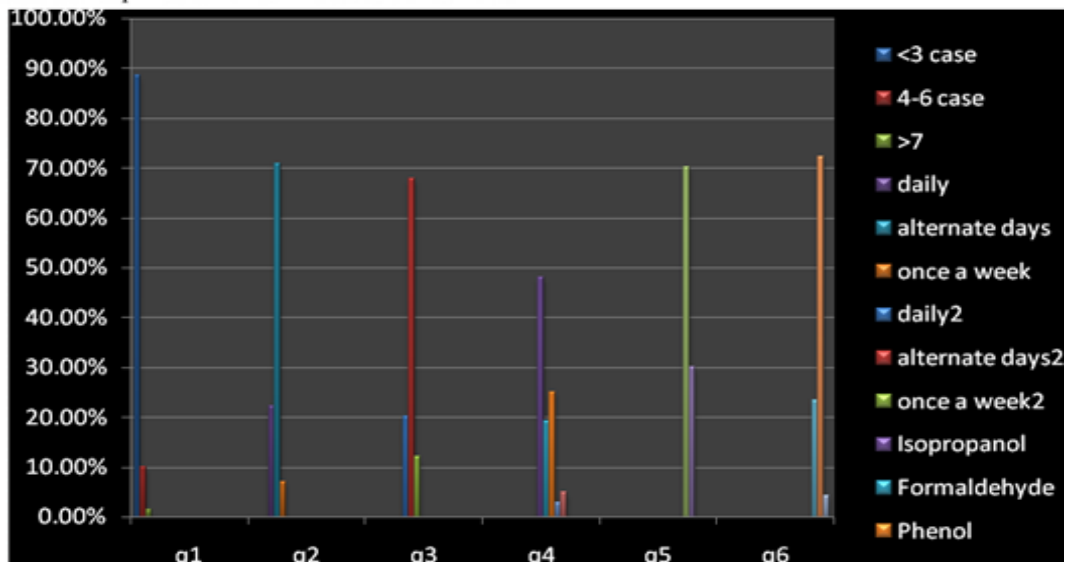
researcher conducting the survey personally visited the participating dental practitioners and the questionnaire was completed by the practitioner in her presence in the surgery.

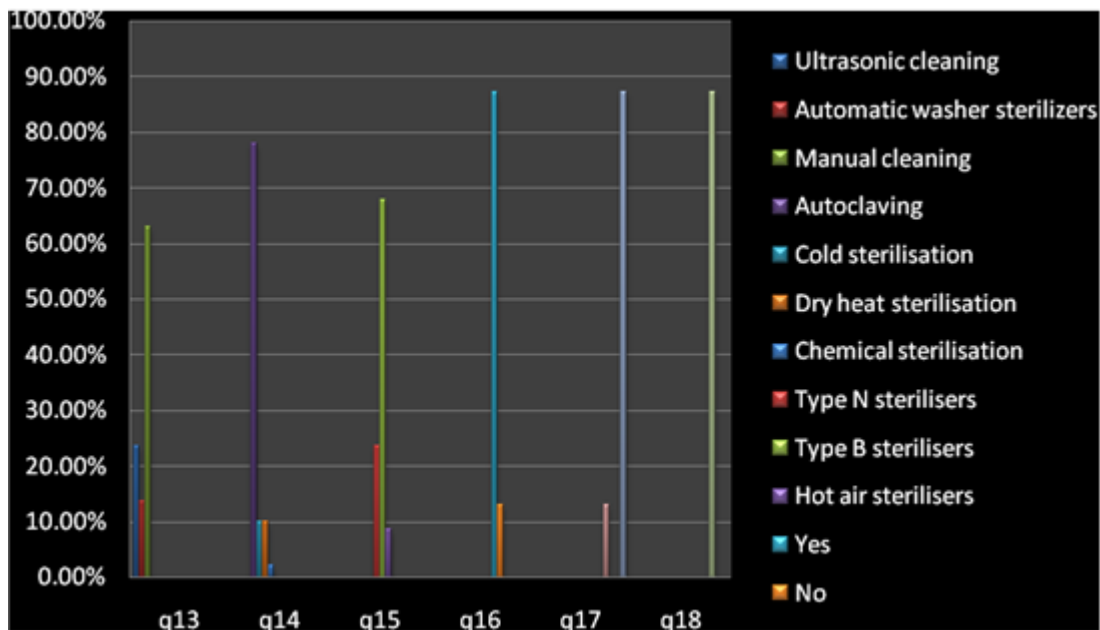
## 3. Results

In this study about 88.6% of the dentists, have seen less than 3 cases of infection in a week .It was reported that 70.7% disinfect their dental chair only on alternative days. ) 67.9% of the dentists disinfect the suction system on alternative days. 47.9% of the dentists used isopropanol for disinfection and 70% of the dentists used examination gloves for performing intra oral surgical procedures. 72.1% dentists used double layered mask while examination. According to our study, only 23.6% change their masks once it gets wet. 82% of the dentists wear safety glasses for their eyes and only 72.4% dentists make their patients wear safety glasses.79.3% of the dentists used sprays for local anaesthesia, while only 53.6% switched or disinfected the spray nozzles between patients. 62.9% dentists cleaned the used instruments manually, and 77.9% dentists used autoclaving as method of sterilization, among which 67.9% used type B sterilisers.87.1% of the dentists resterilize instruments that are not used for more than 4 weeks after sterilisation.87.1% of the dentists claimed that they had colour coded bins for disposal of biomedical waste. 87.1% of these dentists said that they stored sharp instruments in closed containers.

**The questionnaire is as follows:**

- q1. Rate of infection in your practice
- q2. How frequently do you disinfect the dental chair?
- q3. How frequently do you disinfect the suction system?
- q4. What do you use for disinfection?
- q5. What type of gloves do you use while performing surgical procedures under LA?
- q6. What type of mask do you use?
- q7. How often do you change your mask?
- q8. Do you wear safety glasses for your eyes?
- q9. Do you make the patients wear safety glasses?
- q10. Are you vaccinated against hepatitis?
- q11. What type of topical anaesthesia do you use?
- q12. In case of LA sprays do you switch the LA spray nozzles or disinfect them between patients?
- q13. What method of cleaning do you undertake for surgical instruments once used?
- q14. What method of sterilization do you follow?
- q15. In case of autoclaving what type of sterilizer is used?
- q16. Do you resterilize instruments that have been autoclaved and stored but not used for more than 4 weeks?
- q17. Do you have colour coded bins for safe disposal of clinical waste?
- q18. Do you store sharp instruments in closed containers?





#### 4. Discussion

Infection control forms an important part of practice for all health care professions and remains one of the most cost-beneficial medical interventions available.(11) Paramount to the prevention of infectious disease is the strict adherence to universal precautions for all patients.(9)This includes, though not limited to, eye protection with lateral shields, facemask, and protective clothing, which will be laundered on the premises or by appropriate services(10), proper disinfection and sterilisation of the dental care unit and the instruments and regular vaccination of dental healthcare workers.This study was conducted to assess the infection control compliance of general dental practitioners and to study the rate of transmission in their patients. According to this study a high percentage of the dentists, have seen less than 3 cases of infection in a week, which is a low rate. Although disinfection of operating surfaces is a vital procedure in infection control, it was reported that only around 70 percent of the dentists disinfect their dental chair only on alternative days, which is not sufficient according to the guidelines for infection prevention and control in dental office, by dental surgeons of Ontario, which claims that the dental chair should be disinfected daily. It also claims that the suction system should be disinfected at least once a week and that facemasks lose efficiency over time, as they become moist from the oral health care workers' breathing. Accordingly, masks should be changed when they become contaminated, wet or more often, such as during longer appointments (12)But our study states that around 67 percent of the dentists disinfect the suction system on alternative days which is a good method of cross infection prevention,but only around 23 percent of the dentists change their masks once it gets wet, which is a very low rate and has to be improved.Around 78 percent of the dentists used isopropanol for disinfection, while 70 percent of the dentists used examination gloves for performing intra oral surgical procedures, which is a contra indication as surgical procedures should be done with sterilised gloves, according to the CDC guidelines for infection control in Dental health care settings(13) in order to prevent cross infection in dental

clinics. This state should be changed and the use of sterilized gloves for performing surgical procedures should be promoted among the dentists. Although face masks are important for protection against aerosols and splattering,only around 72 percent dentists used double layered mask while examination, whereas the others used only single layerd masks. Doctors should use and also provide the patients with protective eyewear to shield their eyes from spatter and debris created during dental procedures. Protective eyewear should be worn throughout the dental appointment, then cleaned and disinfected after use and whenever becoming visibly contaminated, according to guidelines for infection prevention and control in dental office, by dental surgeons of Ontario,(12) but only around 82 percent of the dentists wear safety glasses for their eyes and only around 72 percent dentists make their patients wear safety glasses. Around 79 percent of the dentists used sprays for local anesthesia, while only around 53 percent switched or disinfected the spray nozzles between patients. Around 63 percent dentists cleaned the used instruments manually, and around 78 percent of them used autoclaving as method of sterilization, among which around 68 percent used type B sterilizers.ICRC states, if proper disinfection, sterilization, storage procedures are followed, the instruments can be stored for a maximum of four weeks before reuse,(14) but only around 87 percent of the dentists resterilizeinstruments that are not used for more than 4 weeks after sterilisation.Biomedical waste is classified as hazardous waste and must not be disposed with regular garbage. It must be handled safely to protect human health and the environment. In general, all biomedical waste must be:

- Stored in colour-coded containers that are marked with the universal biohazard symbol;
- Released to an approved biomedical waste carrier for disposal.(12)

Only around 87 percent of the dentists claimed that they had colour coded bins for disposal of biomedical waste, while the remaining did not use colour coded bins for

disposal of biomedical wastes. According to guidelines for infection prevention and control in dental office, by dental surgeons of Ontario sharp instruments should be stored in closed containers.(12) but only around 87 percent of the dentists said that they stored sharp instruments in closed containers. An overall improvement should be brought about in the infection control protocol that is followed by the dentists, to prevent cross infection in dental offices,

## 5. Conclusion

Infection control procedures are precautions taken in health care settings to prevent the spread of disease. The centres for disease control and prevention has special recommendations for use in dental offices. The principles of infection control should be followed everyday for every patient, a breach in which leads to disease transmission among patients. This makes infection control as significant as it is concerned with patient safety. This study was carried on based on questionnaire filled by dentists depending on the infection control protocol they followed in their dental offices and the results are tabulated above.

## References

- [1] Palenik CJ. Strategic planning for cross infection control. *J Contemp Dent Pract* 2000 1:103.
- [2] Ahtone J, Goodman, RA. Hepatitis B and dental personnel: transmission to patients and prevention issues. *J Am Dent Assoc* 1983 106: 219–22.
- [3] Wood PR. Cross infection control in dentistry: a practical illustrated guide. London: Wolfe Publishing Ltd., 1992.
- [4] McCarthy G M, MacDonald JK. The infection control practices of general dental practitioners. *Infect Control Hosp Epidemiol* 1997 18: 699–703.
- [5] Treasure P, Treasure ET. Survey of infection control in New Zealand dental practices. *Int Dent J* 1994 44: 342–348.
- [6] Kearns HPO, Burke FJT, Cheung SW. Cross infection in dental practice in the republic of Ireland. *Int Dent J* 2001 51: 17–22.
- [7] Centers for Disease Control and Prevention. Guidelines for infection control in dental health-care-setting. *MMWR Surveill Summ* 2003;52:RR-7.
- [8] Laboratory Centre for Disease Control, Health Canada. Update: Universal Precautions for prevention of transmission of human immunodeficiency virus, hepatitis B virus, and other bloodborne pathogens in health-care settings. *CDWR* 1988;14:117-24.
- [9] Gershon RR, Karkashian C, Vlahov D, Grimes M, Spannhake E. Correlates of infection control practices in 0.394\*\* 0.113 0.317\*\* dentistry. *Am J Infect Control*. 1998; 26: 29 – 34.
- [10] Garner J. Guideline for isolation precautions in hospitals. Part II. Recommendations for isolation precautions in hospitals. Hospital Infection Control Practices Advisory Committee. *Am J Infect Control*. 1996; 24: 32 – 52.
- [11] Centers for Disease Control and Prevention. Possible transmission of human immunodeficiency virus to patients during an invasive dental procedure. *MMWR Surveill Summ* 1990;30:489-93.
- [12] Guidelines for infection prevention and control in dental office; ROYAL COLLEGE OF DENTAL SURGEONS OF ONTARIO;; February 2010; 1-56.
- [13] CDC guidelines for infection control in Dental health care settings; December 19, 2003/52(RR17); 1-61.
- [14] Sterilization guidelines; International Committee of the Red Cross ; www.icrc.org; December 2014: 1-50