

Disinfection of dental impressions in dental colleges in India: a cause of concern

Charu Mohan Marya, Prasoon Shukla, Vandana Dahiya, Niraj Rampal

Sudha Rustagi College of Dental Sciences & Research, Faridabad, Haryana, India

doi: 10.3396/ijic.V6i1.008.10

Microbial flora of oral cavity is rich & extremely diverse. This reflects abundant nutrients, moisture, hospitable temperature & availability of surfaces on which microbial populations can develop & a number of them cause infections that may be incurable.¹

Previous reports confirmed that all members of the dental profession are at a risk at least three times greater than the general population of contacting infection and developing the carrier state.² Hepatitis B poses a high risk to dental staff with its relatively low infective dose and stability outside body for lengthy periods.^{3,4,5} It is estimated that, India with a population of nearly one billion, harbors no less than 30 million chronic carriers of the hepatitis B virus (HBV).² Also, India is now among the leading countries for numbers of cases of AIDS; if the situation remains unchanged, the number of such cases could reach 50 million by 2025.² Tuberculosis remains another leading cause of death in India, claiming nearly 400,000 fatalities annually.²

Casts from contaminated dental impressions are known to carry a variety of pathogens and disinfection guidelines, such as those from the U.S. Centers for Disease Control & Prevention, caution that all patients be considered potentially infectious.^{2,6,7,8,9,10} Therefore, proper disinfection of contaminated dental impressions & other dental items leaving the immediate chair-side area remains the best approach to preventing the spread of infections in dentistry.¹ Among the currently recommended, disinfectants for this purpose are formaldehyde, glutaraldehyde, chlorine compounds, iodophores & phenolics in adequate concentrations.^{11,12,13}

Sixty randomly selected dental colleges across India were surveyed by e-mail to assess the current status of routine practices for treating the impressions prior to pouring of casts. The purpose of the study along with a short questionnaire was sent to a suitable academic at each college. The third and final wave of mailings generated a total of 57 responses; 3 of these were incomplete and were not included in the analysis.

Corresponding author

Dr. Charu Mohan Marya, Professor and Head Department of Community Dentistry, Sudha Rustagi College of Dental Sciences & Research, Faridabad, Haryana, India, 121002.

Tel: +91-9811144408, Fax: +91-129-2202951, Email: maryacm@yahoo.co.uk

Out of 54, chemical disinfectants were available in 36 departments (66.7%). Forty-one participants (75.9%) reported that they simply washed the impressions under running water between patients, while 13 participants (24%) reported that the impressions were disinfected.

As confirmed by this survey, most dental colleges still routinely wash the impressions in running water even though the available literature clearly shows such a practice to be inadequate from a microbiological perspective.^{14,15} Therefore, dental colleges in India should immediately review the situation and introduce corrective measures, including additional training of dental technicians & other dental auxiliary personnel as well as establish effective and routine disinfection practices.

References

1. Twomey JO, Abdelaziz KM, Combe EC, Anderson DL. Calcium hypochlorite as a disinfecting additive for dental stone. *J Prosthet Dent* 2003; **90**: 282-288.
2. Kohli A, Puttiah R. Infection control and occupational safety recommendations for oral health professionals. 1st ed. New Delhi: Dental council of India, 2007 p13.
3. Runnels RR. An overview of infection control in dental practice. *J Prosthet Dent* 1988; **59**: 625-629.
4. Davids GR, Porra M. The need for post-vaccination serology & timing of booster vaccinations against hepatitis B in dental health care workers. *Aust Dent J* 1994; **39**: 238-241.
5. Runnels RR. Infection control in wet finger environment. 1st ed. Salt Lake City, Utah: IC publications, 1984 p36.
6. Centers for Disease Control. Guidelines for infection control in dental health care settings - 2003. *MMWR* 2003; **52 (RR-17)**: 1-66. Available at www.cdc.gov/oralhealth/infectioncontrol.
7. Firtell DN, More DJ, Pelleu GB Jr. Sterilization of impression materials for use in surgical operating room. *J Prosthet Dent* 1972; **27**: 419-422.
8. Rowe AH, Forrest JO. Dental impressions. The probability of contamination & method of disinfection. *Br Dent J* 1978; **145**: 184-186.
9. Leung RL, Schonfeldt SE. Gypsum casts as potential source of microbial cross contamination. *J Prosthet Dent* 1983; **49**: 210-211.
10. Merchant VA. Infection control & Prosthodontics. *J Calif Dent Assoc* 1989; **17**: 48-53.
11. Lepe X, Johnson GH, Berg JC. Surface characteristics of polyether & addition silicon impression materials after long term disinfection. *J Prosth Dent* 1995; **74**: 181-186.
12. Hilton TJ, Schwartz RS, Bradley DV. Impression disinfection of irreversible hydrocolloid impressions. Part 2: effects on gypsum casts. *Int J Prosthodont* 1994; **7**: 424-433.
13. Matyas J, Dao N, Capputo AA, Lucatorto FM. Effect of disinfectants on dimensional accuracy of impression materials. *J Prosth Dent* 1990; **64**: 25-31.
14. Abdelaziz KM, Combe EC, Hodges JS. The effect of disinfectants on the properties of dental gypsum: 1. Mechanical properties. *J Prosthodont* 2002; **11**: 161-167.
15. Sofou A, Larsen T, Owall B, Fiehn NE. In vitro study of transmission of bacteria from contaminated metal models to stone models via impressions. *Clin Oral Investig* 2002; **6**: 166-170.