

## Original Article

# CONTRIBUTION OF ENDODONTIC FIELD IN CLEAN INDIA CAMPAIGN BY THE DENTISTS – SURVEY IN SRIGANGANAGAR DISTRICT, RAJASTHAN

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### ABSTRACT:

**Background:** Disposal of harmful waste produced by dentists and clinics can pollute the environment. Dental biomedical waste disposal in the road side bins can infect the municipal waste collectors if they are not properly protected. Many hospitals have no infection control programs due to the lack of awareness of the problem or absence of properly trained personnel. **Aim:** The aim of our study was to evaluate the contribution of endodontic field in clean India campaign by the dentists. **Materials and method:** the study was conducted with 100 dental practitioners in the distt., Sri Ganganagar, by way of a questionnaire about procedures related to the sterilization process in endodontic practice and implementation of biological waste disposal and cleanliness of dental offices. **Results:** In this study we found most of dentists knew about the clean India campaign and they knew about the importance of sterilization, biomedical waste management. In spite of knowing all these methods, only 46% of dentists were using glass bead sterilizer to sterilize endodontic files, 56% of dentists were sterilizing the burs. 58% of dentists were disposing biomedical waste produced from the clinics according to biomedical waste disposal rules. **Conclusion:** This study indicated that there is a need for creating awareness among dentists regarding sterilization in endodontic practice and biomedical waste management and cleanliness of dental clinics and surroundings.

**Keywords:** Cleanliness, sterilization, waste disposal, bio-medical waste, endodontics

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## INTRODUCTION

With effect from 1 April 1999, the Government of India restructured the Comprehensive Rural Sanitation Programme and launched the Total Sanitation Campaign (TSC). Effective 1 April 2012, the TSC was renamed to Nirmal Bharat Abhiyan (SBA). On 2 October 2014 the campaign was relaunched as Swachh Bharat Abhiyan. Swachh Bharat Abhiyan (Clean India Mission) is a national campaign by the Government of India<sup>1,2,3</sup>, covering 4041 statutory towns, to clean the streets, roads and infrastructure of the country. It is India's biggest ever cleanliness drive and 3 million government employees and school and college students of India participated in this event.<sup>4,5</sup>

The essences of cleanliness was captured by the Dravidians, who in 5000 B.C gave due emphasis to safe and effective sewerage systems, to get rid of all solid and liquid waste generated by the population. They were indeed the pioneers as far scientific waste management is considered.<sup>6</sup> Government of India under its gazette notification from the Ministry of Environment and Forests informed to all concerned that no one can dispose any kind of waste, general or bio-medical waste in the open. Disposal of harmful waste produced by dentists and clinics can pollute the environment. Dental biomedical waste disposal in the road side bins can infect the municipal waste collectors if they are not properly protected<sup>7</sup>. Many dental hospitals have no infection control programs

due to the lack of awareness of the problem or absence of properly trained personnel.<sup>8</sup> The aim of our study was to evaluate the contribution of endodontic field in clean India campaign by dentists .

**MATERIALS AND METHODS**

The study was conducted by use of a cross sectional survey. Study was conducted with 100 private dental practitioners in the SRI GANGANAGAR dist., by way of a questionnaire. A 100 self administer questionnaire were delivered personally to dental practitioners randomly. And 100 questionnaires were

returned. Questions were divided into 3 sub-sections. The first section assessed sterilization of endodontic instruments in the dental hospitals. The second section dealt with the pattern of disposal of biological waste generated in dental hospitals. The third section dealt with general procedures including cleaning and disinfection process. The study was conducted in the month of January 2015 in SRI GANGANAGAR district, duration of the survey was 3weeks (Jan 1<sup>st</sup> to jan21<sup>st</sup>). Statistically analysis done with using SPSS software version 10.0 and evaluate the data.

**RESULTS**

**Table 1: RESPONSE TO PRACTICE BASED QUESTIONS ON ENDODONTIC INSTRUMENTS STERILIZATION**

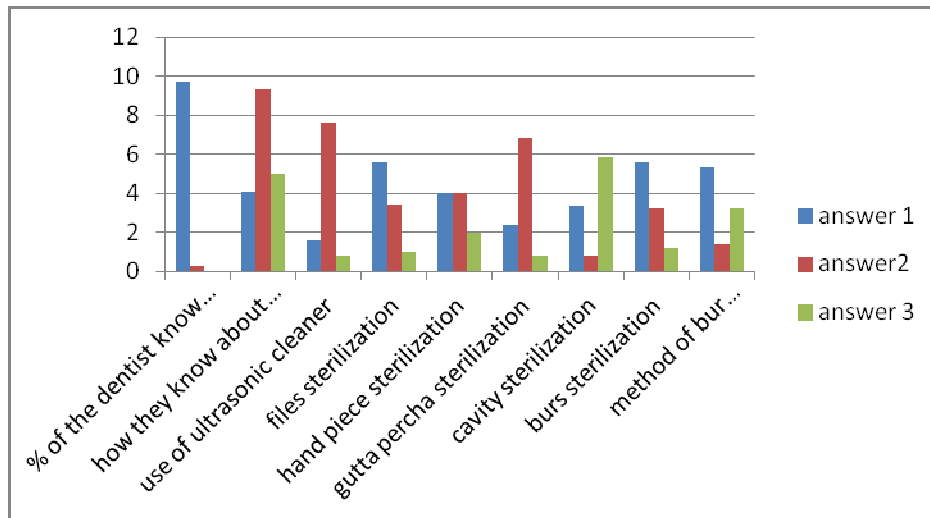
QUESTION	Answer	Result	Percentage
1. Are you aware about the clean India campaign	a. Yes	97	97%
	b. No	3	3%
2. if yes How do you know about this campaign	a. News paper	45	40.6%
	b. Radio	9	9.3%
	c. Television	43	50%
3. Do you use ultra sonic cleaner to clean used endodontic files	a. Yes	16	16%
	b. No	64	76%
	c. Some times	8	8%
4. How do you sterilize your endodontic files	a. Glass bead sterilizer	44	44%
	b. Chemical	46	56%
	c. Not sterilize	10	10%
5. How do you sterilize your hand piece	a. Chemical sterilization	60	60%
	b. Hand piece sterilizer	20	20%
	c. Autoclave	20	20%
6. Do you sterilize gutta-percha before obturation	a. Yes	36	36%
	b. No	56	56%
	c. Some times	8	8%
7. Do you sterilize your cavity before restoration	a. Yes	22	22%
	b. No	60	60%
	c. Some times	18	18%
8. Do you sterilize your burs after use	a. Yes	56	56%
	b. No	32	32%
	c. Some times	12	12%
9. If yes how do your sterilize your burs	a. Chemical sterilization	30	53.5%
	b. Glass bead sterilizer	8	14.2%
	c. Autoclave	18	32.3%
10. How do you dispose your clinical waste	a. With municipal help	58	58%
	b. Self	28	28%
	c. With another source	14	14%

QUESTION	Answer	Result	Percentage
11. If yes what are the procedures do you follow	a. Dumping	20	71.4%
	b. Incineration	6	21.4%
	c. Recycling	2	7.2%
12. Do you separate your waste before dispose	a. Yes	18	18%
	b. No	60	60%
	c. Some times	22	22%
13. Do use colour coded bin/bags for separate waste in your clinic	a. Yes	36	36%
	b. No	48	48%
	c. Some times	32	32%
14. Where does your clinic sewage line is connected	a. Into municipality sewage line	64	64%
	b. Open area	18	18%
	c. Collected self in a dump and dispose	18	18%
15. How do you treat your liquid waste	a. Letting them sewage with treatment	30	30%
	b. Letting them sewage without treatment	50	50%
	c. Collect in a closed dump and treated	20	20%
16. Where do you dispose excess mercury after use	a. In cotton pallet	52	52%
	b. In spent fixer solution	28	28%
	c. Garbage container	20	20%
17. How often your clinic is cleaned	a. Once in a day	56	56%
	b. Twice in a day	36	36%
	c. Once in a weak	8	8%
18. Who is involved in the cleaning process	a. Trained professional	18	18%
	b. Un trained professional	76	76%
	c. Self cleaning	6	6%
19. Which type of cleaning product is used for floor cleaning	a. Detergent	40	40%
	b. Phenol based products	40	40%
	c. Professional cleaning agents	20	20%
20. Is fumigation process followed in your clinic	a. Yes	24	24%
	b. No	68	68%
	c. Some time	8	8%
21. If yes how often follow the fumigation	a. Once in month	8	33.3%
	b. Twice in month	2	8.3%
	c. Once in three months	14	58.4%
P value		<0.0002	

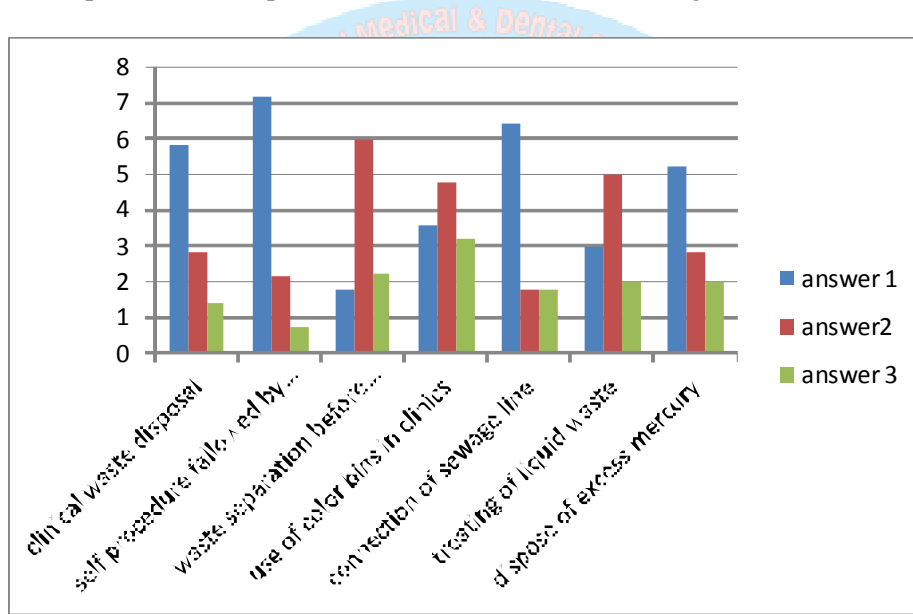
In this study we found Most of the dentists around 97% knew about the clean India campaign and most of them knew about this program from news paper and television. Most of the dentists around 56% were using glass bead sterilizer to sterilize endodontic files, 44% of them were using chemicals to sterilize files. And only 16% of dentists were using ultra sonic cleaner to clean endodontic files before sterilization,

36% of dentists were sterilizing gutta-percha before obturating the root canals, 8% of dentists were sterilizing gutta-percha some times only. 22% of dentists were sterilizing cavities before restoration. 56% of dentists were sterilizing the burs after using them, many dentists 53.5% were sterilizing burs using chemical solutions.

**Graph 1:** Response to practice based questions on endodontic instruments sterilization



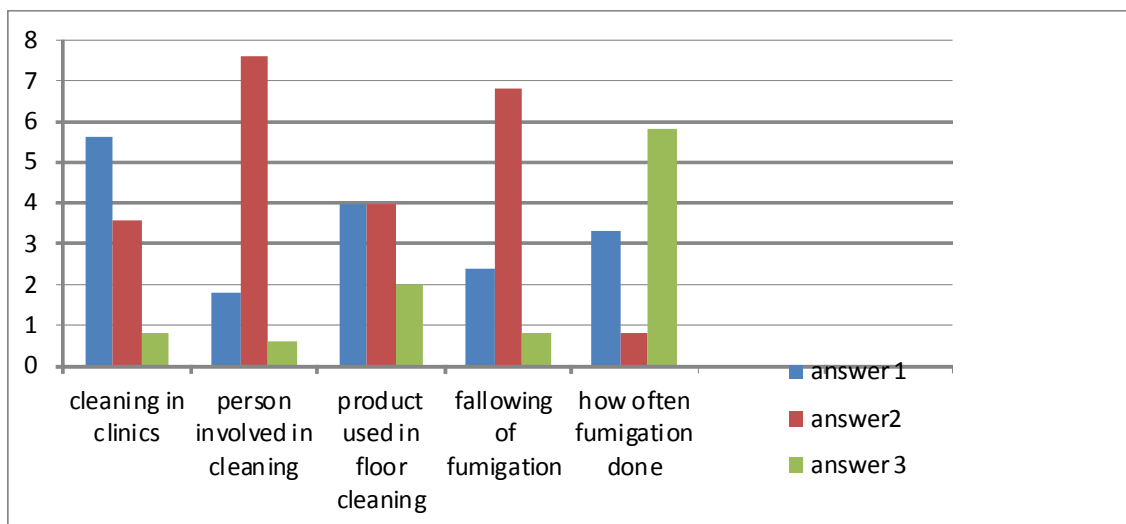
**Graph 2:** Response to practice based questions on biomedical waste management



Out of 100 clinics 58% dentists were disposing clinical waste produced from their clinics with the help of municipality, 28% dentists were disposing self. Out of them 71% of dentist was following dumping procedure, 21% dentists were following incineration procedure. Only 18% of dentists were separating waste before dispose in clinics, out of them 36% of dentists were separating waste using color coded bins. Many dentist around (64%) dentist

had connected sewage line into municipality sewage line and 18% dentist were leaving in open areas. Most of the clinics were cleaning dental clinics daily once, 36% of the clinics were cleaning twice daily. And only 18% of the dentists were involving trained professional in the cleaning procedure. Many Dental hospitals around 68% of dentists were not maintaining fumigation process, only 24% of dental clinics were following fumigation process

**Graph 3:** Response to practice based questions on Cleanliness of dental clinics and surroundings



**DISCUSSION**

Dental Hospitals and other health-care establishments have a “duty of care” for the environment and for public health, and have particular responsibilities in relation to the biomedical waste they produce.<sup>9</sup> Dental practice involves many hazardous exposures and this calls for proper segregation and disposal of biomedical waste<sup>10</sup>. To protect patients and dentist from cross-contamination via instruments sterilization of instruments in dentistry is required. Careful consideration is required when devising a sterilization protocol for endodontic files and dental burs, and some have suggested that these instruments be considered single-use devices<sup>11</sup> Independent of their source and the moment, all debris must be removed prior the disinfection or sterilization, since may interfere with an effectiveness of this process.<sup>12-14</sup> The dentists and dental assistants often preoccupants with the cleaning of metal shaft of files and forget with the plastic handles. Also, this portion of files must receive considerable amount of attention due to the possibility of cross-contamination.<sup>15</sup> Proper sterilization of carbide burs is extremely important because it eliminates the threat of cross infection of patients and staff with communicable diseases. Dry heat sterilizers –170°C (340°F) for 1-hour, Steam autoclaves –121°C (250°F) for 20 minutes at 15 psi will effectively sterilize carbide burs. Avoid cold sterilizing solutions as they contain oxidizing agents which may weaken carbide burs.<sup>16</sup> In this study we found most of dentists knew about the clean India campaign and they knew about the

importance of sterilization, biomedical waste management. Even though only 56% of dentists were using glass bead sterilizer to sterilize endodontic files, and 56% of dentists were sterilizing the burs. And only 58% of dentists were disposing biomedical waste produced from the clinics according to biomedical waste disposal rules with the help of municipality, 64% has connected the sewage line into municipality sewage line. There is still need for improvement in disinfection and sterilization in endodontic practice, especially including sterilization process, proper use of disinfectants, biomedical waste management, frequent disinfection of surfaces which contact with patients. Current study evaluates basic routines in prevention of cross-infection in the dentistry. The result of similar study conducted by Sanjeev R practice scores were 4.35±1.63, 4.69±1.97, 4.43±0.78 respectively with maximum scores of 9, 5 and 10. Significant differences existed in relation to educational qualification of respondents in knowledge and practice scores. The study revealed that although the attitude regarding biomedical waste management among faculty members and students of the institution was high, knowledge and practice remained low.<sup>17</sup>Bhaskar Agarwall et al, given a similar review article Bio Medical Waste And Dentistry the study Waste management is considered as a undignified unquestionably menial job, no wonder it was relegated to the group “D” staff who are headed by a sanitary supervisor. Thus the crying need of the day is to sensitize the top level managers making them aware of the various types of waste

there generation, segregation, collection, transport, and final disposal<sup>18</sup>. Another review article by Sunil Kumar Vc et al Biomedical Waste Management cannot successfully be implemented without the willingness, devotion, self-motivation, cooperation and participation of all sections of employees of any health care establishment. Therefore, it becomes the responsibility of this group to segregate and manage the waste in such a way, that it is no longer hazard for them, public and environment. The most imperative component of the waste management plans is to develop a system and culture through education, training and persistent motivation of the health care staff.<sup>7</sup>

### CONCLUSION:

Our study revealed that although the attitude about biomedical waste management and sterilization was high among the Dentist and dental assistants, the knowledge and practice was comparatively low. Sterilization and disinfection significantly decreases the risk of infectious disease for the doctor, the staff and the patient. This study indicated that there is a need for creating awareness among dentists regarding sterilization in endodontic practice and biomedical waste management and cleanliness of dental clinics and surroundings.

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