

Status of governmental oral health care delivery system in Haryana, India

Ashish Vashist¹, Swati Parhar², Ramandeep Singh Gambhir³,
Ramandeep Kaur Sohi⁴, Puneet Singh Talwar¹

¹Department of Public Health Dentistry, Bhojia Dental College and Hospital, Baddi, Himachal Pradesh, ²Department of Oral and Maxillofacial Pathology, Swami Devi Dyal Dental College, Barwala, Haryana, ³Department of Public Health Dentistry, Rayat and Bahra Dental College and Hospital, Mohali, ⁴Department of Public Health Dentistry, Sri Sukhmani Dental College and Hospital, Dera Bassi, Punjab, India

ABSTRACT

Background: Health system should be organized to meet the needs of entire population of the nation. This means that the state has the direct responsibility for the health of its population and improving the quality of life through research, education, and provision of health services. The present study was conducted to evaluate the government oral health care delivery system in Haryana, India. **Materials and Methods:** The present cross-sectional study was conducted among 135 dental care units (DCUs) of various primary health centers (PHCs), community health centers (CHCs), and general hospitals (GHs) existing in the state by employing a cluster random sampling technique. Data regarding the provision of water and electricity supply, dental man power and their qualification, number and type of instruments in the dental operatory unit, etc., were collected on a structured format. Statistical analysis was done using number and percentages (SPSS package version 16). **Results:** Alternative source of electricity (generator) existed in only a few of health centers. About 93.4% (155) of the staff were graduates (BDS) and 6.6% (11) were postgraduates (MDS). Ultrasonic scaler was available at dental units of 83.1% (64) of PHCs, 73.1% (19) of CHCs, and 93.8% (30) of GHs. Patient drapes were provided in 48.1% (65) of the DCUs, doctor's aprons were provided in 74.1% (100) of the places. **Conclusion:** There is a shortfall in infrastructure and significant problem with the adequacy of working facilities. A great deal of effort is required to harmonize the oral health care delivery system.

Keywords: Evaluation, facilities, government, Haryana, oral health

Introduction

Health is the fundamental right of an individual, and healthy individual is an important resource of any state or country.^[1] Constitution of India has given health under state as well as concurrent list. Subjects such as public health, hospitals, and sanitation are part of the state list, and the subjects having wider ramification at the national level have been included in concurrent list.^[2] Thus, as per the constitution, it is the fundamental duty

of the state government to provide healthcare services through its structured organization of various government hospitals and health centers.

In developing countries, there is a vast difference in oral health status between urban and rural populations, with enormous and widening disparities in access to quality care, predominantly in rural areas.^[3] There are approximately 300 dental colleges in India and annually 25,000 graduates pass out including 5000 specialists. Moreover, as per the latest statistics, there is concentration of only 10% of dentists, where approximately

Address for correspondence: Dr. Ramandeep Singh Gambhir, Department of Public Health Dentistry, Rayat and Bahra Dental College and Hospital, Mohali - 140 104, Punjab, India.
E-mail: raman2g@yahoo.com

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70% of the Indian population resides (rural areas) and 90% of concentration of dental professionals, where only 30% of population resides (urban areas).^[4]

During the last decade, Haryana has achieved significant progress in improving the social infrastructure in the state. Yearwise budget for health infrastructure was raised which resulted in the creation of new health institutions from 1999 to 2010 with addition of 16 hospitals, 32 community health centers (CHC), 41 primary health centers (PHCs), and 32 sub centers (SC).^[5] Now, Haryana's network of health infrastructure comprises 441 PHCs, 97 CHCs, and 52 general hospitals (GHs).

Haryana is basically an agricultural state situated in the sub-Himalayan area with an endemic fluorosis and endemic goiter belt. A huge infrastructure is well required to address all the aspects of health of a huge population of 2.53 crores of Haryana.^[6] Oral health care delivery is addressed by the state through the Directorate of Health Services (dental). However, longevity of life is high when compared to other states. There has been many studies on rural population, elders population of old age homes, children of high schools, Group D workers, police personnel and prisoners, etc., in Haryana indicating high prevalence of dental caries, periodontal disease, dental fluorosis and malocclusion, and oral cancer.^[7-10] However, there is no report of any evaluation done on oral health care delivery in Haryana rendered by the state government. Hence, this study has been taken up as a pioneer study to evaluate the infrastructure of oral health care delivery system in Haryana.

Materials and Methods

Ethical clearance and consent

The study was conducted after obtaining the ethical clearance from the concerned Ethics Committee and consent from the Directorate of Health Services (Dental), Haryana. The study was conducted over a period of 9 months. Evaluation of oral health care infrastructure was conducted by visiting and examining government facilities provided for oral health care delivery within four divisions of Haryana.

Study population and sampling technique

Haryana is divided into four divisions, i.e., Ambala Division, Rohtak Division, Hisar Division, and Gurgaon Division. The list of government health centers (in all four divisions) where dental health care delivery is provided, and the number of dental personnel posted in the center was obtained from the office of the Directorate of Health Services, Haryana. A single cluster sampling technique was used to select various PHCs, CHCs, and zonal civil hospitals (GH) situated within all the districts of state having oral health care delivery facility (with dentist). A total of 495 were identified listing all the clusters and thereafter using a simple random sampling technique. Dentists were posted in 283 centers out of 495. All the centers were visited personally by the investigator according to a schedule and telephonically contacting the dentist posted at the center

prior to the visit. A total of 135 dental care units (DCUs) out of 283 (on the basis of pilot study) were included on the basis of simple random sampling where the dentist was available on the day of scheduled visit till the desired sample size was reached. All the required information was recorded on a structured format without disturbing the normal functioning of the health center.

Study instrument

The instrument used in the present study was a pretested self-structured format. The format was pretested, and data collection parameters were validated and accredited by the experts in the field of Public Health Dentistry. The format comprised various questions to evaluate the oral healthcare delivery infrastructure in Haryana. It included questions on the demographics of the concerned health center such as type of health center, provision of basic facilities in the DCU; for e.g., alternative sources of water and electricity supply, dental man power and their qualification, number and type of instruments in the dental operatory unit, sterilization, infection control practices employed, record maintenance, etc.

Statistical analysis

The recorded data were entered onto a personal computer and then transferred to an MS-Excel sheet, and statistical analysis was carried out using Statistical Package for Social Sciences (version 16.0 for Windows, SPSS Inc., Chicago, IL, USA). Data were analyzed in terms of frequencies and percentages.

Results

A total of 135 DCUs were visited during the survey, which was conducted over a period of 9 months. About 52.6% (71) of dental health centers were in rural areas and 47.4% (64) were situated in urban areas. A total of 77 PHCs, 62 CHCs, and 26 GHs were visited during the survey. Majority of PHCs and CHCs visited were in Ambala Division [Table 1].

Basic facilities

More than 90% of PHCs, GHs, and CHCs were having a 24 h water supply in the DCUs. However, alternative source of electricity (generator) existed in only a few of health centers. Moreover, only 54.5% (42) of PHCs, which were visited were having exclusive toilet facility for doctors as compared to 84.6% (22) of CHCs [Figure 1]. About 57.8% (78) of the DCUs were having cemented floor, whereas 36.3% (49) places were having marble flooring.

Dental manpower distribution

A total of 166 dental surgeons were posted in all the health centers (PHC, CHC, and GH). About 93.4% (155) were graduates (BDS) and 6.6% (11) were postgraduates (MDS). Nearly 36.7% (61) of the staff were males and rest were females. Almost 50% of dental surgeons belonged to the age group of 31–40 years and 92.7% (76) of these were graduates. Dental technicians were present in 28.1% (38) of the places. About

Table 1: Distribution of dental care units among total number of primary health centers, community health centers, and general hospitals of four divisions of the state

Division	GH n (%)		CHC n (%)		PHC n (%)		Total n (%)	
	Dentists present	Visited	Dentists present	Visited	Dentists present	Visited	Dentists present	Total visited
Ambala	8 (100)	8 (100)	13 (62)	8 (61.5)	55 (64)	29 (52.7)	76 (66)	45 (59)
Rohtak	7 (87.5)	6 (85.7)	16 (70)	7 (43.7)	53 (51.4)	16 (30)	76 (56.7)	29 (38)
Hisar	13 (81.2)	6 (46.1)	24 (72.7)	8 (33.3)	29 (27)	15 (51.7)	66 (42.3)	29 (44)
Gurgaon	8 (80)	6 (75)	16 (80)	9 (56.2)	41 (68.3)	17 (41.4)	65 (72.2)	32 (49)
Total	36 (85.7)	26 (72.2)	69 (71.1)	32 (46.4)	178 (50)	77 (43.2)	283 (57)	135 (47.7)

Total number of dental care units-495, Total number of dental care units having dentists-283, Total number of dental care units visited-135. PHC: Primary health centers; CHC: Community health centers; GH: General hospital

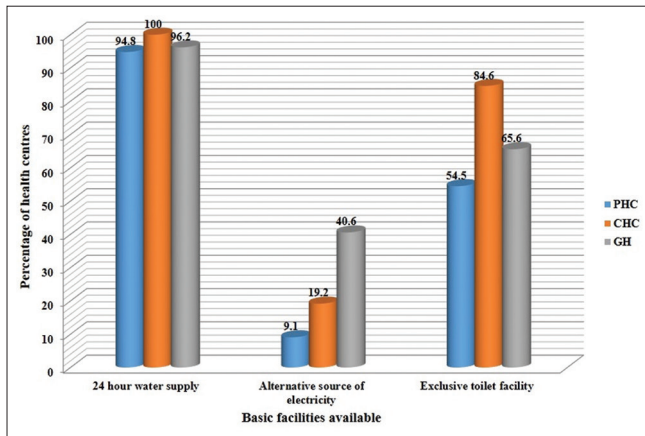


Figure 1: Provision of basic facilities in dental care units of health centers

1.5% (2) were having dental hygienist, 0.7% (1) were having dental nurse.

Dental equipment

DCUs at all the health centers (135) were equipped with a dental chair and a compressor. Figure 2 depicts the percentage of health centers equipped with different dental equipment. Ultrasonic scaler was available at dental units of 83.1% (64) of PHCs, 73.1% (19) of CHCs, and 93.8% (30) of GHs. However, very few health centers were having intraoral periapical X-ray unit (IOPA). Sterilization of dental instruments is an important step toward infection control, and for this purpose, autoclaving of instruments is mandatory. More than 80% of health centers were equipped with top loading autoclaves, which were used for sterilization.

Protective wear, antiseptic solutions, and waste management

All the 135 DCUs visited for survey were having sterilized gloves and mouth masks, whereas none of the DCU was provided with eye protection gear. Patient drapes were provided in 48.1% (65) of the places, doctor’s aprons were provided in 74.1% (100) of the places, whereas 29.6% (40) of the places were provided with aseptic hand wash solution [Figure 3]. About 96.3% (130) of the surveyed dental units were managing their waste through collaborations, whereas 3.7% (5) of the units were having independent arrangements for waste management.

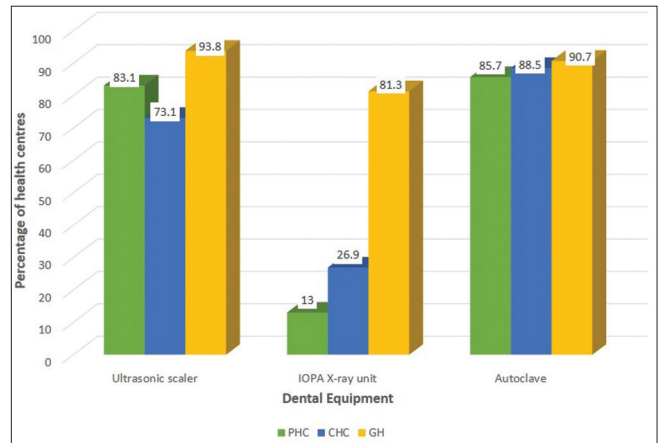


Figure 2: Availability of dental equipment in various health centers

Record maintenance

Outpatient department (OPD) register, stock register, and treatment register were maintained at all the 135 dental units situated in PHCs, CHCs, and GHs. Table 2 depicts the maintenance of other registers such as personal condemnation register, refund register, common register, and exclusive fee collection register at dental units in all the PHCs, CHCs, and GH. About 16.9% (13) of the units had personal condemnation register, whereas only 3.9% (3) had a common register. About 84.6% (22) of dental units at all health centers were maintaining exclusive fee collection register.

Discussion

The healthcare delivery of any state is not possible without an appropriate health care infrastructure. Adequate infrastructure which includes buildings, equipment, supplies, and communication equipment forms a crucial part of the health services.^[11] Healthcare centers, dispensaries, or hospitals need to be manned by well-trained staff with a service perspective. Oral health promotion and checkup and appropriate referral on identification are an essential requirement at the PHCs, whereas in the CHCs, it is imperative to have a unit consisting of dental chair and sets of dental equipment for examination, extraction, and management of dental problems.^[12]

The results of the present study showed that there is critical shortage of DCUs and the dental manpower in the government

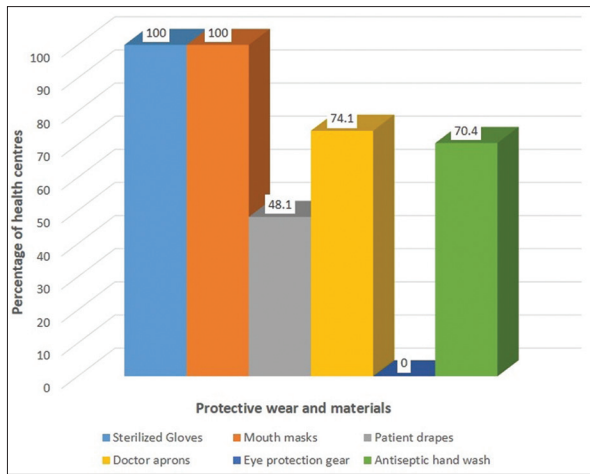


Figure 3: Protective wear and antiseptic materials in health centers

sector catering to the needs of the general population. Similar finding was reported in another study conducted in Mangalore where four PHCs did not have any government-appointed dentists but were managed by dentists from the private colleges in and around the area.^[13] This is in contrast to the findings of a study done for the evaluation of Government Dental Centers in Egypt.^[14]

Regarding the availability of basic facilities for DCUs, the alternative source of electricity such as generator were found only in 18.5% of the places, thus hampering the daily OPD work at the time of electricity failure. The Government of India has provided guidelines for CHCs and PHCs keeping in view the resources available with respect to functional requirements for a CHC with minimum standards for such as building, manpower, instruments and equipment, drugs, and other facilities. In a CHC, the IPHS guidelines state that it should have the facility for electricity, all weather road communication, adequate water supply, telephone, etc., Arrangements shall be made to supply 10,000 liters of potable water per day to meet all the requirements.^[15]

Only 54% of the PHCs visited were having exclusive toilet facility for doctors. IPHS guidelines recommend that public utilities should be separated for males and female; for patient as well as for paramedical and medical staff. Disabled friendly, water closet with wash basins as specified under guidelines for disabled friendly environment should be provided.^[15]

Majority of the DCUs were having cemented floor. The cemented flooring is considered to be a disadvantage in places such as health centers because of its porous nature as compared to granite floors, which leads to infections from different mediums such as spilled blood from surgical extractions etc.^[16] Therefore, it is important to prevent surfaces from becoming reservoirs of antibiotic-resistant bacteria and thereby contributing to cross-infection in the dental clinic. According to IPHS guidelines, A CHC should be well planned with the entire necessary infrastructure. It should be well lit and ventilated with as much use of natural light and ventilation as possible.^[15]

Table 2: Types of register used to maintain different records in dental care units of health centres

Type of register	PHC n (%)	CHC n (%)	GH n (%)
OPD register	77 (100)	26 (100)	32 (100)
Stock register	77 (100)	26 (100)	32 (100)
Condemnation register	13 (16.9)	03 (11.5)	05 (15.6)
Refund register	0 (0)	0 (0)	0 (0)
Treatment done register	77 (100)	26 (100)	32 (100)
Fee collection register	74 (96.1)	22 (84.6)	09 (28.1)
Common register	3 (3.9)	7 (26.9)	22 (68.8)

Total number of dental units-135. PHC: Primary health centers; CHC: Community health centers; GH: General hospital; OPD: Outpatient department

The reason for low male percentage in the present study can be attributed to males opting more for private practice for better emoluments. India has low female to male population ratio with low percentage of women (24%) engaged in some kind of work.^[17] However, the expansion of the number of women in dentistry has been one of the major dental manpower trends during the last quarter of the past century.^[18] This is reflected in the greater number of women dental manpower than male counterpart. Moreover, the specialist manpower was found to be very low (6.6%) as compared to general dentist (93.4%), which was in sharp contrast to the required numbers of specialist at any health center in Haryana.

DCUs having no ultrasonic scaler relied on option of hand scaling which indeed is a tiring and time consuming procedure, thus affecting the efficiency of dental manpower. IOPA X-ray unit was also absent at majority of places which is mandatory for proper diagnosis and treatment. This finding is comparable to a study done in Chandigarh, India, where radiographic facility was also lacking in health category B dental units.^[19] It was also found that eye protection gear was not available at any DCU, thus exposing the dentists to different types of eye infections^[20,21] and showing inefficiency of the concerned authorities in maintaining infection control practices.

There were less numbers of PHCs and CHCs maintaining condemnation register as the number of DCUs were increased only recently and for most of the equipment of dental operatory, the time for condemnation has not reached yet. The maintenance of medicolegal register was not appropriate in all the PHCs as either the medicolegal opinion was given on plain sheets or such cases were referred to GHs because of the close proximity of the secondary or tertiary health care units.

It was noted in the study that there were no provisions of any training facility for para-dental workforce at any of the DCUs. Partnership with nongovernmental organizations in operating the DCUs was not present at any of the places. However, collaborations were there for organizing the camps but that too were not on regular basis. Para-dental workforce employed at a PHC or CHC can be trained to conduct comprehensive oral cavity screening during their visit to the individual homes in the area covered by the health centers. This would not only help in

identifying people with dental needs, but also the health worker can also motivate them to visit the health center to avail dental services.

The present study had some limitations as well. Only 47.7% of the DCUs were visited because of the unavailability of the dentists at some units during the survey. This may not reflect a true scenario but definitely provides an overview regarding oral health delivery infrastructure and can serve as an eye opener for government authorities. A cluster sampling technique was employed to select the sample size which has its inherent standard errors. This was done as it was not practically possible to cover all PHCs, CHCs, and zonal hospitals with limited time and resources (finances and manpower) that were available to complete the study. Moreover, the study was a part of postgraduate curriculum of a dental institution, therefore more detailed survey needs to be conducted by the government to assess the oral health care delivery system of the state which should include issues such as the programs, the funds allotted, the utilization of funds, special programs conducted regarding oral health, tobacco-related programs in the center, and the type of care provided.

Relevance of the study to the practice of primary care physicians

Variety of primary care facilities are provided in the public sector in India through PHCs, CHCs, and GHs. However, in the present scenario, Indian Rural Health Care faces a crisis unmatched to any other social sector. Union Ministry of Health and Family Welfare figure of 2005 suggests a shortfall of PHC facilities - 12% for SCs, 16% of PHCs, and 50% CHCs as compared to prescribed norms by the World Health Organization.^[22] Nonavailability of facilities such as water and electricity can only be expected to deeply undermine the functioning of existing facilities. It is very much possible that if the facility has one resource, it may not have other resources to optimally utilize the available resources; for example, if a health worker is available at the facility, it may not have water/electricity, thus undermining the ability of the PHC workers to perform his/her functions optimally.

The lacunae found in the infrastructure and manpower in the present study have also a close bearing on the practice of primary care physicians employed in the government sector, especially in the rural areas of the state. This can directly affect the health system of any country, which is associated with vital issues of its people. It was found in the present study that only 135 DCUs were visited out of 283 because of the unavailability of dentist (absenteeism) on the day of visit. Similar trend has been noted with regard to the availability of primary care physicians in India in different states.^[23,24] The primary reason for absenteeism appears to be the quality of infrastructure at the facility. It is well known that many physicians are not willing to serve in the rural areas due to the lack of facilities even if they are paid high salaries. Moreover, they that rural postings distance them from their friends, families, professional colleagues and

teachers, lead to physical and social isolation, and lower their professional standing. The government has failed to provide the basic infrastructure and incentive structure (not necessarily monetary but in terms of job environment and recognition) for doctors and other health workers to be motivated enough to do their job. This has resulted in opening of private clinics by physicians working in the public sector and referral of patients from the government sector to their clinics.

Lack of adequate infrastructure and personnel the public healthcare facilities has forced people to seek treatment in the private sector despite significant higher cost in private sector. The rural consumer is willing to pay higher amounts for better quality and more appropriate services in private set up placing himself/herself in the grip of lechers (money lenders). Another important finding of the present study was lack of any training facility for health care work force. More and more training institutes for at least lower categories of paramedical staff should be located in the rural areas by upgradation of existing facilities. It was also advocated by the government to do task-sharing with nonphysicians, which is a well-proven strategy for making healthcare more accessible and affordable without compromising quality, but healthcare requires teams of professionals with complementary roles in which physicians play a crucial role. There is no getting away from the fact that we do need more physicians in rural areas and in primary care more generally.^[25]

Conclusion

The study was conducted to evaluate the governmental oral health care infrastructure in Haryana. The findings reveal that present situation is grim as far as government oral healthcare infrastructure is concerned. Thus, there is a great deal of effort required to harmonize the oral healthcare delivery system according to the requirement of the masses. Present DCUs are limited to diagnosis, prescriptions, and treatments; however, there should be an inclusion of preventive and rehabilitation programs to make it an efficient overall oral healthcare delivery system. Health planners considering the future delivery of oral healthcare for the public must include a re-evaluation of their traditional image of the dental practice setting.

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Conflicts of interest

There are no conflicts of interest.

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