

Dental Camp Experience in Lifeline Express (LLE) Train among Rural Population of Central, India

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ABSTRACT

Introduction: The lifeline express is the world's first hospital train. To date, over 800,000 patients living in the remote rural interiors of India where medical facilities are scarce, have been treated.

Objective: To evaluate the application and feasibility of providing screening, diagnosis, preventive dental treatment for rural population through mobile dental unit in lifeline express train from last three years in Madhya Pradesh, India.

Materials and Methods: The study was retrospective and the data was extracted from six dental camps which have

been conducted by Life line Express/ Impact India foundation in between 2011 to 2013 in rural and remote area of Madhya Pradesh.

Results: Out of six dental camps 14,081 patients were registered and 6,526 received dental treatment. The type of dental treatment like extractions (3,441), scaling (2,119) and restoration (966) were performed.

Conclusion: The study shows a mobile dental hospital like LLE can provide an excellent opportunity for rural populations regarding oral health care.

Keywords: Central india, Dental camp, LLE, Mobile dental unit

INTRODUCTION

Dental public health aims to improve the oral health of the population through preventive and curative services [1]. India is the second most populous country in the world with an extensive rural population (68.8%). Children less than 18 years constitute about 40% of the population. Approximately, 23.5% of the urban population resides in urban slums. The extensive rural population, school children and the urban slum dwellers are denied of even the basic dental services though there is continuous advancement in the field of dentistry [2]. Typically, the options available for the delivery of services are traditional stationary clinics; portable equipment; or mobile dental clinics (van or truck) [3].

Mobile dental clinics provide an innovative solution to providing dental care. They act as the first form of exposure to educate the rural people and alleviate them of their oral health care needs. Mobile Dental Unit is also a mean of comprehensive oral health care provider with oral health treatment and education being provided to the rural population at the same place [4].

The MDVs (mobile dental vans) are regularly used for providing dental health care to the poor, needy and rural population through dental camps. Dental camps as practiced in Indian institutions are usually a day long visit to rural or remote places or school setting for the provision of services like preventive care, curative care, screening for diseases and health education [1].

There are a variety of service delivery configurations utilized by organizations that operate mobile dental units. A GOI-WHO (Government of India-World Health Organization) collaborative program (2008-09) studied the utility of MDV (mobile dental van) in rural population around Lucknow, India. It was found that oral-dental treatment performed as well as awareness generated through MDV during the project period was significant. Based on the outcome, it was proposed that MDVs can be a useful adjunct to the existing system of health care delivery [5].

The lifeline express is the world's first hospital train. The train, which is the flagship of Impact India Foundation, in partnership with the Indian Railways running in all parts of rural and remote area of India

and almost completed his 156 projects till date. In Madhya Pradesh, the total 22 places were covered by lifeline express during his project namely; Khandwa, Chhindwara, Guna, Biyavra, Anuppur, Shivpuri, Katni, Betul, Ashoknagar, Morena, Umariya, Vidisha, Jabalpur, Jhabua, Sagar, Rewa, Itarsi, Shahdol, Bishrampur Mahasamund, Dabra and Ruthiaii from the year 1991 to 2014 [6].

Lifeline express has medically served more than 800,000 poor in rural India, restoring sight movement through cataract operations and providing intra ocular lenses, restoration of movement to polio and orthopedically affected persons by surgery and provision of calipers, assessment of curvature of cornea by a keratometer, restoration of hearing through surgery and supply of hearing aids, correction of cleft lips with dental and neurological treatment and more, completely free of cost been treated [6].

The other major services provided by lifeline express were: (1) Counseling, referral services and follow-up of patients' progress through arrangements with local authorities. (2) Preventive services in the form of immunization, administration of nutrients, and creating health awareness among the deprived in the neglected rural and semi-urban areas. (3) Opportunity provided to medical and other voluntary personnel to work in a unique field situation. (4) Teaching surgeons, working in smaller towns, the finer skills of micro-surgery. (5) Training health workers, doctors and other Non-Government Organisations on various health issues [6].

By ensuring access to such services for the needy and the deprived in the remote areas, the Lifeline Express not only renders a much needed service but also raises the efficiency level of the existing local government and voluntary health infrastructure. It also ensures that the local bodies of the area, who are involved in all aspects of the programme, provide follow-up services after the Lifeline Express has departed. It leaves behind much greater awareness and a better motivated administration for the disabled. At the macro level too, the Lifeline Express creates awareness and motivation for the cause of the disabled, across a wide cross section to include Government, business houses, voluntary organizations and individual volunteers [6].

Site Number	Project site	State	Duration	Total dental cases registered
1	Biowara	MP	17 Dec-27 Dec (2011)	4,155
2	Sagour	MP	17 Dec-27 Dec (2012)	2,810
3	Biowara	MP	21 Jan-30 Jan (2012)	2,299
4	Shivpuri	MP	31 March-03 April (2012)	1,396
5	Anuppur	MP	28 May-05 Jun (2012)	1,986
6	Biowara	MP	14 Jan-22 Jan (2013)	1,435
Total				14,081

[Table/Fig-1]: Number of dental cases registered at the six project sites during 2011-2013

Impact India introduced dental services as a trial measure on the Lifeline Express in Mandsaur in Madhya Pradesh. Patients received free treatment for scaling, fillings, extractions and minor surgeries, and biopsies of a few patients were taken for diagnosis. This trial project demonstrated that there was an urgent need for dental health care [7].

In Madhya Pradesh, for over three years, the Department of Public Health Dentistry of Sri Aurobindo College of Dentistry, Indore, India is regularly conducting dental camps in mobile dental clinic of hospital train. The specialists, postgraduates and undergraduates attend these programs to provide curative, preventive and referral services, but the conduct of these camps is not yet evaluated. To our knowledge there have been no long-term studies analyzing the provision of oral health care through railroad. Hence this study has been undertaken to evaluate the application and feasibility of providing screening, diagnosis, preventive and dental treatment for rural population through mobile dental unit in lifeline express train from last three years in Madhya Pradesh, India.

MATERIALS AND METHODS

Background and Concept of LLE

The concept for the LLE is if disabled persons cannot reach a hospital, the hospital should reach them. This has resulted in the LLE hospital on rails, with the potential to bring health services to the remotest corners of the country. It provides on-the-spot diagnostic, medical, dental and surgical treatment free of charge to patients. Each program requires complex planning and coordination by various bodies. The organization which coordinates this effort is called IMPACT (International Initiative against Avoidable Disablement) promoted by the UNDP, UNICEF and WHO in association with the governments of each participating region.

Indian railways have an extensive network spanning over 300,000 kilometers extending to the remotest areas of the country. This makes it possible to provide service with projects like the LLE. Four old railway coaches released by Indian Railways have been redesigned and restored by engineering, medical and dental consultants and refurbished into a fully functional, air-conditioned hospital equipped with all modern medical, dental and surgical facilities.

Regarding dental facilities MDU of LLE have one dental chair unit which is electrically operated with shadow less lamp, spittoon, three way syringe, micro motor, airtor, scalar, instrument tray and suction. It has also one portable dental chair with suitcase unit fitted with complete dental unit. There are two autoclaves for sterilization purposes and two powerful generators of 125 KVA for uninterrupted power.

The train also has a recovery room, meeting room/conference hall, auditorium, counseling room for training sessions for up to

Site Number	Project site	Type of dental treatment performed			
		Scaling	Extraction	Restoration	Total
1	Biowara	683	975	347	2,005
2	Sagour	381	478	76	935
3	Biowara	330	658	143	1,131
4	Shivpuri	176	310	81	567
5	Anuppur	285	447	124	856
6	Biowara	264	573	195	1032
Total		2,119	3,441	966	6,526

[Table/Fig-2]: Type of dental treatment performed at six sites

50 persons, facilities for performing x-ray including dental, routine laboratory investigations, audiometry, and ophthalmic examinations. Medical and dental surgeries commonly performed include cleft palate repair, polio sequelae repair, cataract, ear surgeries and dental extraction.

The sponsors for projects include Indian businesses, foundations, institutions, or State or Central Governments. The first step is assessing the needs of a particular area in consultation with the district administration, non-governmental organizations or health officials. After receiving a formal request, assessment of staff services available is made and the dates finalized. Arrangements are made for large outstation health teams for accommodations and food. Indian Railways coordinates movement of the LLE, with parking at sidings along with provision for water, electricity, and leveling of the siding. Medical, dental and paramedical professionals provide their services and expertise on a voluntary basis. Local and national media inform people of the services of the LLE and procure funds from multinational corporations and firms.

Methods

The study was retrospective and the data was extracted from six dental camps which have been conducted by Life line Express/ Impact India foundation in between 2011 to 2013 in rural and remote area of Madhya Pradesh. The total camp duration for each specialty was around 10 days. In dental camps firstly, the registered patients of LLE who wants dental checkup or treatment came in MDU (mobile dental unit) of LLE train. There was a provision of waiting area of capacity of 20-30 patients were made available in the MDU, where the screening of the patients was done. After thorough examination by the efficient dentist, the patient advised for the appropriate treatment. In MDU there were total three chambers, in two chambers dental procedures like extraction, restoration, scaling, x-ray and minor surgery was performed after taking informed consent and in another chamber tobacco cessation counseling was done for the oral cancer patients. At the same time the oral health awareness program were also conducted among the patients who were seating in the waiting room. This program includes demonstration of correct tooth brushing, maintenance of oral hygiene, ill effect of tobacco use etc. The patient who need medicine were also provided with free of cost during the camp. About average of daily 200 patients were got benefitted by our dental team during the LLE camps.

RESULTS

Although the LLE has traveled in different part of India and has conducted more than 50 dental camps in various places, we did analysis of retrospective data from six camps which had been conducted in Madhya Pradesh in between 2011 to 2013 attended by our institution.

In the six dental camp of LLE attended by our team a total of 14,081 patients were registered and among all project site. Biowara was the place were maximum number (4,155) of patients were registered in 2012 [Table/Fig-1]. A total number of 6,526 patients underwent

dental treatment. Extraction (3,441) was one the highest type of dental treatment performed followed by scaling and restoration among all six dental camps [Table/Fig-2]. All the complex dental cases of LLE camps were transferred tertiary or government centers.

DISCUSSION

Accessibility of oral health care services has been identified as a key barrier or challenge for rural-dwelling individuals and those living in long term care facilities [1]. In India, the distribution of dentists is grossly uneven with more than 90% of dentists available in urban settings and only 10% available for 72% of the rural population. There are no dentists posted at the level of primary and community health centers in most of the area of Madhya Pradesh state [2].

Though mobile and portable dental services provide an innovative solution in bringing dental care to underprivileged areas, they seek the cooperation of professional organizations and other NGO's in establishing a public-private partnership for their application on a large scale. The successful implementation and execution of oral health-care delivery using the mobile and portable dental services rely largely on collaborative efforts of the following:

- Professional dental associations
- Non-government organizations (NGOs)
- Government sector and
- Local civil society.

India has initiated a project titled "healing touch—a mobile health-care project of specialists for the needy" in collaboration with the Catholic Church Caritas—Goa, India. The mobile clinic was successfully used to provide quality medical and dental care. The program offered an entire range of medical and dental services to the needy population. This program is an example to highlight how mobile dental clinics can be used to merge the health and oral health services. The program highlights the role of non-governmental organizations in promoting health and oral health.

The present study shows a mobile hospital train, like the LLE, can provide free oral health care to rural populations with success rates comparable to when the procedure is performed at routine dental facilities. The LLE also gives the opportunity for dental surgeons working in smaller towns to learn advanced skills of dentistry and

provides training for health workers, and doctors regarding health issues. Mobile dental delivery models are said to increase access and utilization of dental services for those otherwise not accessing care in traditional dental settings. In the present study, we found that dental camps with MDU programs of LLE were predominantly used for curative services than preventive services in rural areas. The preventive services like oral health education were only available, whereas, curative services like restorations and extractions were practiced in all the dental camps program of LLE. Oral health education counseling regarding oral health maintenance and oral cancer using IEC material (posters, charts, audio-visual aids) is an effective tool in prevention of oral diseases.

CONCLUSION

The study shows a mobile dental hospital like LLE can provide an excellent opportunity for rural populations regarding oral health care. They act as the first form of exposure to educate the rural people and alleviate them of their oral health care needs. Utilization of MDU of LLE is indispensable for the treatment camps, but preventive services should also be given importance.

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