

DENTAL TREATMENT ON WHEELS

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Abstract

There are a large number of geriatric populations in India that demands dental care. Transportation and finances are the major barriers that they have to face. Approximately 70% of dentists in India practice in urban areas. Rural areas have very few dental clinics except for few government establishments. These clinics lack proper infrastructure. Hence the traditional setting requires to be modified. Mobile and portable dental clinics can answer the problem to geriatric population by bringing the treatment near them. The mobile dental clinic offer advantages such as providing community outreach, increasing personal satisfaction for geriatric clients and dental professionals, and providing dental care to those who would otherwise not receive treatment due to some or the other barriers. Through mobile and portable dental units are of great advantage to the elderly and under privileged people, some shortcomings still exist in implementing the use of these systems. These include the initial and maintenance cost of such a unit, difficulty in maintaining and storing patient's record, limitation of treatment options, weather related problems, the number of clients seen in a day, and requirement of high administrative needs. Mobile dental clinics is a good option although it requires more care as dismantling the entire set up can be cumbersome and time consuming. Patients are treated on site. More patients can receive care who might otherwise go without or receive only symptomatic care. Hence it is a boon to geriatrics and disabled people for whom transportation is a major issue.

Key words – Dental Care, Geriatric, Mobile, Portable

Introduction

India is a country with a huge population of 1.25 billion. Nearly 70% of this population lives in rural areas. For millions of people, especially in rural areas access to dental care still remains difficult as majority of dentists practice in urban areas. There are various other factors also that prevent the people from reaching the dental clinics. These factors include old age, poor socioeconomic status, severe and profound mental disabilities, psychiatric disorders, neuromuscular disorders, sensory impairment and orthopaedic disorders.¹ The need of the hour is to provide effective dental care to the underprivileged and rural population of India. Indiana Administrative Code (IAC) 4-2-2, Section 2 has defined "Mobile dental facility" as "any self-contained facility in which dentistry will be practiced, which may be moved, towed or transported from one location to another." Portable dental equipment is defined as any non-facility in which dental equipment, utilized in the practice of dentistry, is transported to and utilized on a temporary basis at an out-of-office location, including, but not limited to: ²

- a. Other dentists' offices;
- b. Patients' homes;
- c. Schools;
- d. Nursing homes; or
- e. Other institutions.

Policy background

During the early 1970s, when dentistry was in its budding stage, public health dentistry was introduced to address the need of people who were beyond the reach of dental services. The main objective behind this was to expose the graduating dentists to know the dental needs of the rural population and provide their services to them.³ To address the problems of large population who were unable to go to the dentist, mobile or portable vans were introduced. The concept of mobile dental clinics dates back to 1617. John Woodall, Surgeon General to East India Company

produced details of the contents of surgical chests that included instruments for scaling, gum treatment and extractions.⁴ The Cleveland Chapter of the Preparedness League of American Dentists presented a "dental ambulance" to the army in the name of Red Cross in 1917. The ambulance was operated by four dentists and one or two assistants. Portable dentistry began during the World War II. The dental officer of each unit carried one large shoulder pouch and his assistant two smaller pouches that contained instruments for emergency use. The pouches carried items required for the relief of pain, simple extractions, emergency treatment of maxillofacial injuries and temporary fillings.⁵ In February 1921, Dr. N. Talley Ballou was appointed dental director of the Bureau of Mouth Hygiene. He stressed upon oral health education and emphasized proper brushing, reduction of sweets and regular visits to the dentist. He propagated the awareness programme in his mobile dental van.⁶

Mobile dental vans are a desirable mode of clinical practice in an unconventional setup for the outreach programs.⁷ World Health Organization (WHO) has recommended dentist to population ratio of 1:7500. But the dentist population ratio in India is 1:10000. The distribution of dentists in the rural and urban areas reflects a glaring contrast. In rural areas of India the dentist population ratio is 1:250000.^{8,9} Approximately 70% of dentists in India practice in urban areas. Rural areas have very few dental clinics except for few government establishments.³ To establish dental operatories and Primary health centres a huge amount of capital is required. Hence the traditional setting requires to be modified.

Mobile dental clinics can answer the problem by providing dental check-up, screening of oral diseases, oral health surveys and certain basic procedures like simple restorations, extractions, scaling, fluoride therapy and fissure sealants etc. at door step. The most important thing

is to educate the rural population about the importance and need of oral health.

Geriatric people due to illnesses and certain physical limitations often find it difficult to maintain personal hygiene and travel to a dental clinic for the treatment.^{10,11} The major barriers that are faced by elderly people in accessing dental treatment are financial^{12,13,14} transportation^{14,15} and motivation.^{11,14} Most elderly people undergo dental treatment that are inexpensive¹⁴ or covered by insurance.¹⁵ The mobile dental clinics provide the treatment to the elderly people at a reduced cost¹⁶ as the overhead¹⁷ and construction costs of such units are less when compared to private dental clinics.¹⁸ Often the elderly people do not want to leave home and visit dental clinic.¹¹ Even the family members and of the elderly¹⁴ do not give priority to the oral health in comparison to other health issues. Stiefel¹¹ discovered that the home visits for the dental treatment were very helpful to the elderly patients as well as their families. Almost 66% of the times the family members take the health decisions of the elderly.¹⁴ Mobile clinics can be helpful to deal with such problems.

Another major issue is to provide oral health care to the individuals with mild to severe disabilities like mental retardation, psychiatric disorders, neuromuscular disorders, sensory impairment and orthopedic disorders.¹ These people can be benefitted by the mobile dental clinics as; such setup can provide the basic dental health care by increasing the access to residents in rural and urban areas. In countries like USA such programs are already taking care of people with disabilities. Referrals are done by the regional centres for the disabled. One such example is The Missouri Crippled Children's Service and local agencies that arrange such services, and funding is done by Maternal and Child Health funds from the Missouri Department of Health and the Missouri Elks Benevolent Trust Association.¹⁷ Such programs can be started in India also to serve the disabled section of the society.

The main goal of the mobile dental clinics is to provide dental health care to all the sections of the society. Because of the shortage of dental health facilities in rural areas such portable units can solve the basic dental problem to a great extent. It is a boon to geriatric and people with disabilities for whom travelling is a major issue. Lower cost of dental treatments is a big respite to the lower socioeconomic strata of the society. Thus mobile clinics are now an integral part of all the dental health schools.

Achievements/Performance

The mobile dental clinics eliminate the distance criteria by bringing the patient closer to the service. Mobile dental vans are used to cater to large number of people in different ways. It is helpful in school programs, retirement homes, rural communities, corporate employees, community agencies, and different organizations.³ It is involved in training of dental students for the community dental services like community awareness and oral health promotion.¹⁸

The mobile dental clinics do not require very high capital investments to start the setup. Only moderate cost is involved to begin and run the setup. Such clinics solve the problem of transportation for the patients. It is convenient to treat school children as the problem of appointment is taken care of by such portable clinics. These clinics make its services available at multiple sites; hence maximum number of patients can utilize the services provided by the mobile dental clinics. Because of the ease of access the needy population turns out in good numbers to avail the dental facilities offered by these clinics.¹⁹ The mobile dental clinics are equipped with dental chairs. There could be either one or more than one dental chair according to the usage and demand. The dental chair is hydraulic with the spittoon, tumbler air and water connections. There is adequate drainage and auto flush system required for the functioning of dental chair inside the mobile dental clinic. Airtor, micro-motor and scalar with three scaling tips are provided for the efficient restorations and cleaning of teeth. Micro-motor is also useful for minor denture adjustments. Chair lightning is provided for illumination and better viewing. Light cure unit is also installed for esthetic restorations. There is an intraoral x-ray unit 70 KV, 8 mA with digital arm timer is installed that can take and develop the x rays instantly. X ray viewer is also attached to the chair for the better viewing of radiographs. An autoclave unit is also a part of the mobile clinic as it keeps on sterilizing the instruments so that it can be used again for patients. Hence the number of instruments to be carried by the clinic is reduced. Glass bead sterilizers are used to sterilize RCT files, burs. It is portable and consumes very less current. The instruments kept in this are sterilized within 10-30 sec. Compact compressor 0.25 HP oil free, is fitted with auto head air release valve and safety valve. Over heat thermo cut off valve is also a part of the compressor to protect the unit from overheating. . A voltage stabilizer of 4 KV that has a high correction speed with the input range 170-270 V and output range 220-230 V is a must for the mobile clinic. A water tank of 400 litre capacity is fitted on the ceiling of the dental van that can provide uninterrupted water supply during the dental procedures. Oxygen cylinder is a must to be installed in the mobile clinic in case any emergency arises. To educate the society about the proper dental care various education models, TV and DVD player are also kept in the mobile dental clinics.²⁰ In a developing country like India oral health needs to be addressed very extensively as the people are still not aware of its importance.

Critical review of the policy

The execution, maintenance and fuel cost to run a mobile dental clinic are important aspects for the success of mobile dental vans.²¹ The initial cost to start the setup may be very high, depending upon the types of equipment's purchased.^{10,15} The expenses can exceed up to one quarter of the cost of implementing a fully equipped dental clinic.¹⁸ The initial cost can be brought down by setting up lighter weight and smaller units. Such units can initially evaluate the patients and screen them with the help of equipment's

which could be fit into a fishing tackle box. After the examination, patients can be referred either to the dental clinic or the mobile van with desirable equipment's that can be brought to attend the needs of the screened patients.²² Another disadvantage is power supply. The mobile dental units are not self-sufficient from electricity point of view; hence certain complicated procedures like complex oral surgeries cannot be performed in these units. Even certain specialized procedures like endodontic treatment, periodontal surgeries complex extractions and oral surgeries are not possible.^{22,23} Most of the mobile dental vans do not have laboratories to fabricate prosthesis. Hence the fabrication is done in the dental labs and only the minor denture adjustments are done in the mobile dental vans.²² Thus the mobile dental vans are more effective in offering diagnostic, preventive and some simple procedures like simple restorations etc.^{16,24} The issue of time availability is also considered as a disadvantage as there is a lot of time that get wasted in travelling to the location, setting up of the equipment's and dismantling it.^{10,17} This limits the number of patients that can be seen in a day.¹⁵ Some insurance companies do not write liability policies on dentists who treat the patients at home. Hence insurance companies should be chosen carefully.¹⁷ Handling and maintenance are the problems of mobile dental vans that have to be considered because they do not have any backup equipment.²³ This problem can be avoided by regularly servicing the mobile dental vans and avoiding them to travel over great distances.²⁴ Patients records are very important from the treatment and recall point of view hence it need to be stored carefully. But this is not possible with this type of setup. Hence storage and difficulty in accessing these records is yet another problem of such mobile units. Prior permission is required from the concerned authorities for the site usage. This requires people in administration to take the permission every time before the dental visit is planned at some site. The mobile dental vans need to be parked appropriately so that there is no problem for the nearby residents and traffic is also not blocked.^{12,15} Provision of toilet and changing room for the staff is desired because the sanitary provisions may not be available at all the places and the mobile dental van programs are an entire day program. But this provision is not there in the mobile dental vans. Waste disposal should be done properly. The biomedical waste that is generated should be collected and disposed by incineration.²⁵ Disposable items were suggested by Grant and Miller because it is less time consuming and easy to manage. The drawback is the cost as it is very expensive.²⁶ The mobile clinics have to be parked in a proper garage with proper security system and the driver of the van has to be a full time and an integral part of the mobile dental van team.²

Recommendations

The mobile dental van service should be strengthened in the regions where the dental institutions are lacking. The collaboration of the medical and dental service providers such as school teachers, dental hygienists, village health guides, trained dais, ASHA and Anganwadi workers can be

utilized to promote health of the needy population. The mobile dental units may utilize tele-dentistry services as well to improve the efficiency of dental personnel in areas where access is difficult.⁹ Some actions are recommended at national and state level for improvising the oral health care and bringing the treatment nearer to the population in need. At national level database of state laws, rules and regulations related to mobile health services should be created. The insurance companies should be should be clarified in the beginning to provide insurance to the patients availing the treatment from the mobile dental units. New and existing resources should be promoted for portable dental services so that the priority is given by the government by providing aids and funding. At state level a state wide tracking system of mobile dental units should be provided that are offering the treatment for preschool and schools. State oral health programs need to work closely state department of education state Medicaid programs.²⁷

The mobile dental vans should have at least two fully equipped dental chairs. Water and electricity supply should be a part of the mobile units.²⁸ There should be a basic emergency medical kit carrying medicines, equipment's and manual to deal with emergencies during dental procedures. The mobile dental van should be spacious enough to carry all the instruments and materials required for the dental camps.²⁹ In addition to sterilization of instruments the mobile dental van should be fumigated routinely at least once a month to prevent cross contamination through the dental personnel because of poor ventilation and limited dimensions of the unit.³⁰

Conclusion

There is a common myth that a good dentistry can be practiced only in the conventional setup. This myth need to be disassociated by bringing the mobile dentistry closer to the population in need and providing a comprehensive oral health care and oral health education to them. To achieve this target a fully equipped mobile dental clinic with competent team of dentist and assistants are required to provide services to the people in need at the door steps.

In a developing country like India where there is still a large number of rural populations that cannot access the basic dental care services, mobile dental clinic is the solution. This service is an effective adjunct to the dental colleges and hospitals to impart basic oral health care like oral check-ups, simple restorations and extractions and patient education.

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