

## Use of the Camel-cart for Health Care Delivery in Remote Desert Habitations

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Villages in the desert region of Western Rajasthan are characterized by scattered households which are clustered into small individual groups called "Dhanis" (hamlet). The rural population residing in the 'Dhanis' need a type of health care delivery system which can reach them when needed at their far off habitats.

Desert conditions put up a number of constraints to the providers of preventive health care. The principal among which are, a) the inaccessibility of the facility, b) the low population density of the region, and c) the scattered 'Dhani' system. The distances to be covered between 'Dhanis' are often considerable and this adversely affects the delivery of health care to the residents. During summers, dust storms often prevent the operation of the health care delivery system, the major components of which are prevention of disease and administration of prophylactic measures. There is, therefore, a need to look for a system alternative to existing health care delivery system which is cost-effective, more practical and locally acceptable as well as operational in the desert in all seasons. Strategies meant to cover as many persons as possible under the preventive programmes should aim at a model which could be developed easily, utilizing locally available resources and which can allow the health personnel to have closer contacts with the people in remote areas in the desert. With this in view a concept of Camel Health Cart was developed and its feasibility and operationability tested in the desert.

The feasibility of the model was tested in the field in four different trials carried out in the district of Jaisalmer, Jodhpur and Pali (two trials) as the physical conditions in each district were different from those of the others. Sand dune formation indicating the extent of severity of desert conditions was maximum in Jaisalmer and was minimum in

Pali district while in Jodhpur district it was considered to be moderate.

A camel cart, which is typically desert based transport system was hired for the purpose of the study. A social scientist carefully monitored the direction, movement and speed of the cart. To start with, the cart man was instructed to take the camel cart across the desert dunes from one village to another. The investigator followed the route of the cart in a jeep in the same direction and noted the time taken by the cart with the help of a watch and the distance covered with the help of the Milometer of the jeep. Thus the speed of the camel cart was calculated. In the same manner the cart was taken from the second village to the third and then to the next village, each time calculating the speed of the camel cart. In each trial a minimum of six villages were included. The average speed was then calculated. After the preliminary studies in Pali and Jodhpur, a detailed study was conducted in one primary health centre (PHC) area of a typical desert district viz. Jaisalmer. The density of population in Jaisalmer district is 6 persons km<sup>-2</sup>. The Ramgarh PHC of Jaisalmer was utilized for this study. This desert mini PHC serves 37 villages. Out of these, 18 villages which are situated at distances of 30 to 110 km from the nearest town were chosen for the trial. For each trial the following information on each study village was collected i) Medical facilities available ii) Approach to the village (Type of road), iii) Facilities for communication iv) Educational facilities v) Distance from the nearest town (km.)

Five villages in Pali tehsil of Pali district and 15 villages in Phalodi tehsil of Jodhpur district were included in the study. The speed maintained by the camel cart averaged 4.87 km h<sup>-1</sup> for Pali and 4.92 km h<sup>-1</sup> for Jodhpur. A trial covering 18 villages was conducted in Jaisalmer tehsil of Jaisalmer district. The average distances between any two consecutive

villages ranged from 5 to 10 km. During the trials it was observed that the speed of the camel cart was more in the sandy terrain than on the roads. The speed was also affected by the efficacy of the animal. However, the average speed was approximately  $5 \text{ km h}^{-1}$ . Considering the speed achieved by the camel cart in the trials conducted, it would seem that on an average 2 to 3 villages can be covered by the camel cart per day on a daily routine, spending 2 hours at each village. The utility of the above system lies in its potentiality to deliver prophylactic health programmes to the needy population living in the remote 'Dhanis' in the desert. Considering the population size of a typical desert village in Jaisalmer varying between 2 to 3020 people per village, it is possible to plan a strategy for the coverage of one PHC area to start with, utilizing this system.

The PHC area selected covers 37 villages having 3000 households. These households are scattered over approximately 3000  $2 \text{ km}$  area. Assuming that there will be at least one child per household requiring immunization, it is estimated that about 3000 children need to be covered. If 40

children can be covered per day by this system, it would seem possible to make a coverage of all immunization programmes in the mini PHC area in 72 working days spread over 6 months. A camel cart would be available for hire for Rs. 70/- per working day. If the services of the existing health staff are utilized, an additional expenditure of Rs. 5000 would enable to ensure coverage of 3000 children of the selected area. Thus, an additional input of Rs. 2/- per child would be needed for this purpose. It is proposed to carry out a community trial using the model to cover the following programme in the selected PHC area: i) Administration of a massive dose of vitamin A to all pre-school children, ii) Immunization of all needy children as per schedule, iii) Distribution of iron and folic acid tablets among pregnant women iv) Health education, and v) Others. The costing and feasibility of an operational trial programme will be carried out in Ramgarh PHC area of Jaisalmer district.

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