International Journal of Research
Available at https://edupediapublications.org/journals
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 12
April 2018

Review Of Evr For A Metro And Its Effectiveness

Jeyabalan. S (P6815PTN03)

PG Student, Prist University, Thanjavur

Abstract

Transportation of trauma cases is an integral component of health care provision. Ambulance services to transport pregnant women, children and those that require emergency medical attention remains a challenge in India even after 50 years of public health care provision. The transport component is known to contribute to accelerating the achievement of various Millennium Development Goals, including those relating to reducing maternal and infant mortalities. It was in this context that the National Rural Health Mission (NRHM) in India funded a nationwide initiative to support rural ambulance service - the "Dial 108 service". This was largely adopted from a not-for-profit organization, the Emergency Medical Research Institute (EMRI), which has initiated 108 services early on. This case study analyzes the experiences of the states of Karnataka and Tamil Nadu in the context of the NRHM initiative.

The analysis provides insights on factors contributing to efficiency, cost-effectiveness and likely impact. The case study demonstrates the usefulness of the public-private partnership model in converging technology, management, skill-building, funds and political will, and offers useful suggestions for setting up low-cost emergency medical transportation services for the rural population, which can also serve urban areas, both in India and in other countries.

Introduction

Millions of emergencies end in a loss of life because the needy cannot afford ambulance services. In order to remove the barriers of affordability that prevents the poorer sections of the state from accessing ambulance services, TNHSP proposed to launch ambulance services. Initially, Tamil Nadu Health Systems Project had partnered with selected NGOs in 15 districts to provide ambulance services. Due to various difficulties faced in running the operations, it was decided to partner with an experienced organization. Subsequently, the Project signed a MOU to provide emergency services for the State, fully funded by Government of Tamil Nadu. All the ambulances procured were handed over to EMRI so that they could modify according to the specifications. On September 15, 2008, the programme was launched in Tamil Nadu. The 108 Emergency Ambulance Service is a 24x7 service, which anyone can avail by dialing the number 108 on their phone during the case of any emergency. It could be a medical emergency, a fire emergency, or a crime being committed. The number 108 is a toll-free number and can be dialed from any phone, be it a mobile phone or a landline, at the time of

an emergency, without any prefix or suffix. Help reaches the person within 20 minutes.

Initially, the person who receives the call at Emergency Response Centre (ERC) takes down the nature of emergency and the location of the caller. Depending on the nature of the call, an ambulance, a fire engine, or police assistance is sent. This is done through the Emergency Response Centre. The centralized Emergency Response Centre helps coordinate between the Dispatch Officer, Emergency Response Centre Physician and the Emergency Medical Technician (EMT) for getting guidance during transit. Coordination with police and fire department is also facilitated through the Emergency Response Centre. The entire service is free for any citizen.

Necessity

At the time of launch of National Health Mission (NHM) in 2005, ambulances networks were non-existent. Now 28 States/UTs have the facility where people can dial 108 telephone number for calling an ambulance. 108 is predominantly an emergency response system, primarily designed to attend to patients of critical care, trauma and accident victims etc. For 108 emergency transports, capital expenditure of ambulances is supported under NHM and operational cost is supported on a diminishing scale of 60 % in the first year, 40 % in the second year and 20% thereafter. Implementation of National Ambulance Service (NAS) guidelines has been made mandatory for all the ambulances whose OPEX and CAPEX are supported under NHM. 7239 ambulances (490 Advanced Life support and 6749 Basic Life Support ambulances) are being supported under 108 emergency transport systems including new. The capital expenditure for ambulances were borne by the States out of their own funds and under NHM support is being provided for POL cost only to such ambulances. The 108 Emergency Response Service should be called:

1. To save a life
2. To report a crime in progress
3. To report a fire
4. Anytime an emergency response is required for medical, law enforcement and fire.

Methodology

This study is based on secondary data collected from various websites. Simple growth rate, Compound Annual Growth Rate (CAGR), and Percentages are used as tools.

Ambulance Count in Tamil Nadu

Year	No. of Ambulance	Increase or Decrease	Growth rate in percentage
2008-09	183	---	---
2009-10	384	201	109.84
2010-11	406	22	5.73
2011-12	436	30	7.39
2012-13	629	193	44.27
2013-14	638	9	1.43
Compound Annual Growth Rate		**24.95**	

Models for Rural Ambulance

NHM classifies NAS into 108 services and 102 services, according to the number dialed when calling the ambulances. The 108 services is an ERS transporting accident victims, critical care, trauma and other medical emergency patients. The 102 services is a

basic patient transport system for pregnant women and children. Currently, 108 services has 7,239 ambulances (490 advanced life support and 6,749 basic life support. The 102 services has 8,122 ambulances, with the capital expenditure for 2,677 out of 8,122 ambulances borne by the states23. NAS also includes an additional 4,769 empanelled vehicles used in some states to transport pregnant women and children, such as the Janani express in Madhya Pradesh, Odisha, Mamta Vahan in Jharkhand, Nishchay Yan Prakalpa in West Bengal and Khushiyo ki Sawari in Uttarakhand.

States have the flexibility to establish referral systems to transport pregnant women and newborns/infants. This spawned off different models of operations in providing emergency transport or referral transport services (see Box 1). At present, India has over eighteen (18) different models of transportation for emergency, pregnant women, children and other categories of patients

Rural Services in Tamilnadu

In Tamil Nadu 1,140,000 deliveries took place in 2006. Among these, 7% of deliveries were in HSCs, another 7% in PHCs, 56% in government hospitals and the remaining 30% in private hospitals. Although 96% of the total deliveries are institutional deliveries, more than one thousand maternal deaths occurred and the MMR was 90 per 100,000 deliveries, 79% of which were attributed to direct causes. The pressure was on the health system to provide timely, quality and affordable medical care for reducing maternal and infant mortality, emergency trauma cases, surgical procedures and specialist medical attention. The lack of ERS was the cause of the loss of thousands of lives particularly in rural areas. To remove the affordability barriers to ambulance services in the poorer section of rural and urban areas, ambulance services were launched under the Tamil Nadu Health System Development Project (TNHSP).

The TNHSP initially partnered with non-government organizations to provide ambulance services in 15 districts but later partnered with an experienced organization due to various difficulties encountered. TNHSP signed an MoU with GVK25 - Emergency Management and Research Institute (GVK-EMRI) to provide emergency services for the state. The ERS is fully funded by the Government of Tamil Nadu. The budget for the financial year 2013-14 (1st April 2013 to 31st March 2014) was Rs. 990,233,000 with the average expenditure per ambulance per month at Rs. 116,589.70. All the ambulances procured by TNHSP were handed over to EMRI for retrofitting with the required specifications. On September 18, 2008, the 108 service was launched in Tamil Nadu with 385 ambulances, growing to 638 ambulances at present. The EMRI had empanelled 1,806 private hospitals until 31st March 2014.

Currently, the call center is operating from a building temporarily allotted for this purpose but it is expected that a dedicated call center at the Directorate of Medical Services campus will be operational soon. Meanwhile, EMRI employs 3,315 persons, of whom 141

are EROs, 1,459 are EMT, 1,552 are drivers, 56 are operation staff and 107 are support staff. The male/female ratio is 2733/582. GVK-EMRI is run independently. An MOU was signed between GVK-EMRI, TNHSP and Tamil Nadu Health Society (nodal agency for NRHM in Tamil Nadu) detailing various parameters.

TNHSP has a team under the Deputy Director that monitors performance on a daily basis. The Project Director (with TNHSP), who is also the Mission Director (with NRHM), reviews the performance on a monthly basis and uploads the performance report to the NRHM website. A transparent, accountable and working system is also in place.

Data refinement & Processing

The refinement and processing of the data are presented in a flow chart (Figure 5). The street data attribute was inspected to verify if it would support time-based networking. It was modified by adding the fields MILES, HIERARCHY, and FROM-TO (MINUTES) to make it useful in the calculation of accumulated time and distance for routing and service areas. These fields were calculated using a field calculator. The MILES field was calculated by multiplying the street length by 5,280 to obtain street distance in miles. The TO-FROM (MINUTES) and FROM-TO (MINUTES) fields were computed by dividing the product of MILES field and 60 by the street speed limits ((MILES*60)/SPEED_LIMIT). The HIERARCHY field was calculated based on the roads types (interstate = 1, U.S. highways = 2, state highways = 3, State roads = 4.).

Two feature datasets were created: the streets feature dataset and EMS feature dataset. The streets dataset contains only the street data while the EMS feature dataset is composed of police, EMS and fire stations as well as their service area layers. A Network Dataset was created using the streets feature dataset. The service areas for the emergency services were created using the Network Dataset with the respective emergency dataset.

Limitations of the Study

This study was carried out using available data from the Indian GIS Department. The State‟s road dataset lack certain attributes needed for this study. To develop models and effectively compute distance, route and directions, road information such as correct speed limits, road names, pavement conditions and one-way streets should be readily available. Since some of this information was lacking, they were assumed to be correct and constant. Again, due to security reasons information about trains which is the main source of the barrier was also not available. The speed and length of trains were assumed.

The models are exclusively based on ESRI ArcGIS Network Analyst extension. The geocoding of the address given by a caller is accomplished by using an ArcGIS tool (Find tool). To use these models, a copy of licensed ESRI ArcGIS software needs to be installed on the computer being used. Again, the use of these models requires some knowledge in ArcGIS software. The models are based on this software and it would be difficult for

anyone who is not familiar with the software to use the models. For instance, the use of "Find tool" to geocode and add a point to the location requires some general knowledge of the software.

Conclusions

It is terms like 'The Golden Hour' and the 'Platinum Ten Minutes' that imply the importance of Emergency Medical Services (EMS) all over the world. It is a well-accepted fact that a patient who receives basic care from trained professionals and is transported to the nearest healthcare facility within 15-20 minutes of an emergency has the greatest chance of survival. GVK EMRI has set path breaking precedent for all in health care domain to innovate, collaborate and implement initiatives effectively, targeted towards community at large.

References

- *Amy J Kesterton, John Cleland and Carine Ronsmans (2010). Institutional delivery in rural India: the relative importance of accessibility and economic status. Biomed Central. 6 June. Accessed 8 July 2014.*
- *Anirudh Krishna and Kripa Ananthpur (2013). Globalization, Distance and Disease: Spatial Health Disparities in Rural India. A study funded by 3ie. Accessed 5 July 2014.*
- *Prakash, A Surya (2009). Governments That Work - I: Primary Health Care Finally Takes Off in the States. Available from http://www.vifindia.org/article/2009/april/Governments-That%20Work-Primary-Health-Care-Finally-Takes-Off-in-the-States. Accessed 5 July 2014.*
- *Chakraborty Lekha, Yadawendra Singh and Jannet Farida Jacob (2012). Public Expenditure Benefit Incidence on Health: Selective Evidence from India. Working Paper No. 2012-111. December 2012. National Institute of Public Finance and Policy. New Delhi. Accessed 5 July 2014.*
- *Department of Economic Affairs, Ministry of Finance, Government of India and The World Bank in India (2011). Improving Road Safety: Tamil Nadu Road Sector Project. Innovations in Development, issue 5.*
- *KPMG (2010). Health Care: Reaching out to the masses. Pan IIT Conclave 2010. Available from http://www.kpmg.com/IN/en/Pages/default.aspx. Accessed 5 July 2014.*
- *Krishna, A. and D. Bajpai (2011). Lineal Spread and Radial Dissipation: Experiencing Growth in Rural India, 1993-2005. Economic and Political Weekly, September 17, pp. 44-51.*
- *Government of India (2013). Report of the Committee for evolving a composite development index of states.*
- *Gupta Indirani (2009). Out of Pocket Expenditures and Poverty: Estimates from NSS 61st Round. Paper presented for consideration of the Expert Group on Poverty, Planning Commission. Institute*

of Economic Growth, New Delhi. Accessed 7 July 2014.

- *International Institute for Population Sciences (IIPS) and Macro International (2007). Morbidity and Health Care. In National Family Health Survey (NFHS-3), 2005–06: India: Volume I, Ch. 13. Mumbai: IIPS.*
- *International Institute for Population Sciences and Macro International (2007). National Family Health Survey (NFHS-3), 2005-06, India: Key Findings. Mumbai: IIPS.*
- *IBEF India (2013). India: Health Sector Report. Available from www.ibef.org. Accessed 7 July 2014.*
- *Live Mint (2014). Distance and institutional deliveries in rural India. Available from http://www.livemint.com/Opinion/55N9wi8w2SO1lEE9MHPvaL/Distance-and-institutionaldeliveries-in-rural-India.html. Accessed 8 July 2014*
- *Ministry of Health and Family Welfare (2014). EMRI/Patient Transport Service – National Ambulance Services. Available from http://nrhm.gov.in/nrhm-components/health-systems-strengthening/emri-patient-transport-service.html. Accessed 8 July 2014.*
- *Murugan, A. (2008). Medical Tourism: Opportunities and Challenges in Tamil Nadu. Conference on Tourism in India – Challenges Ahead, 15-17 May 2008. Kerala, India: Indian Institute of Management Kozhikode.*
- *Nagaraj, R. (2010). Development Strategies and Poverty Reduction. In Country Study: India, R.Nagaraj, ed. Geneva: United Nations Research Institute for Social Development.*
- *National Health System Resource Centre (2013). National Rural Health Mission Eleventh Five Year Plan (2007-2012). New Delhi: Government of India.*
- *Selvaraj S. and A. Karan (2009). Deepening health insecurity in India: evidence from national sample surveys since 1980s. Economic and Political Weekly, vol. 44, no. 40, pp. 55-60.*
- *Hemalatha, Karthikeyan (2013). For 10th year in a row, Tamil Nadu tops India in road accidents. The Times of India, online edition, 24 June. Available from http://timesofindia.indiatimes.com/india/For-10th-year-in-a-row-Tamil-Nadu-tops-India-in-road-accidents/articleshow/20735444.cms. Accessed 6 July 2014.*
- *Sinha, Kounteya (2011). Health budget may go up by 2%. The Times of India, online edition, 8 May.Available from http://timesofindia.indiatimes.com/india/Health-budget-may-go-up-by-2/articleshow/8192054.cms. Accessed 6 July 2014.*
- *World Bank (2014). GDP Ranking. Available from http://data.worldbank.org/data-catalog/GDPranking-table. Accessed 7 July 2014*