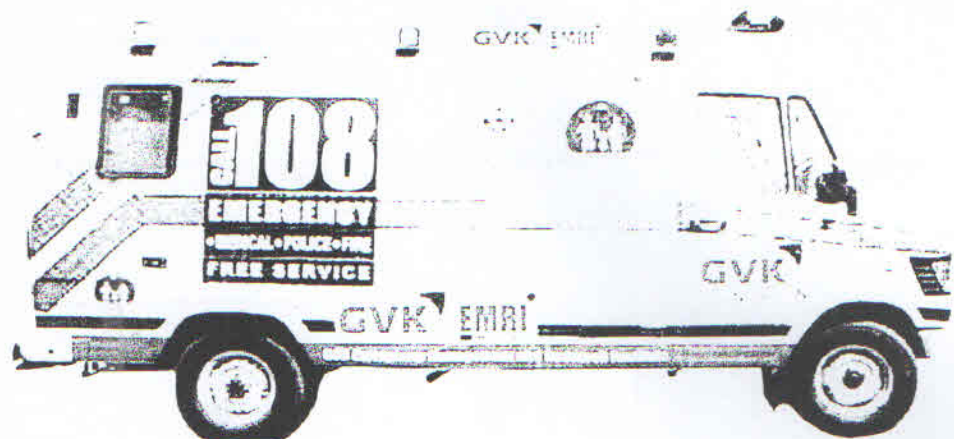




October 2013

EMERGENCY RESPONSE SERVICES (EMRI MODEL) 108 IN KARNATAKA AN EVALUATION STUDY



EXECUTIVE SUMMARY

India is experiencing a tremendous growth in emergency medical services systems. The main purpose of Emergency Response Systems (ERS) is to provide 24X7 services to meet the emergency services demands of the population in the necessary quantity and quality. Timely and prompt delivery of the ambulance to the site, for the right reason, to the right person, giving the right medical care at the right time with right attitude are some of the critical areas in emergency response system. It is often stated by GVK EMRI that EMRI strives to provide each citizen the "Right to Safety" with the unique model of integrated emergency response service.¹ The process of safe patient transfer is a complicated process and involves the interaction and coordination of various levels of healthcare providers and agencies. Building an effective emergency management system in our country with a vast population and varied geographical terrain, socio economic conditions and cultural beliefs is a challenging task and requires strengthening of various sectors. The ERS system needs to be constantly evaluated and modified to maximize quality, minimize cost and optimize overall efficiency. In a country like India, Emergency Management Systems can occasionally become overwhelmed and the demand may exceed the available resources. There should be a policy and a strategic plan in place to assist at these times in order to efficiently allocate the resources. However, when the demand exceeds available resources on a frequent basis, this is a sign of poorly funded, designed or mismanaged system.

Community awareness on the emergency services offered is of prime importance in order to make the community well informed on how to utilize the service, when to utilize the service and also be self-reliant and capable of availing the services. Utilization of any services is again a complex phenomenon. Use of any health services is related to its availability, quality of services offered, cost of services, social structure, cultural beliefs and need of services.

This study brings out the various perspectives of EMRI model in terms of operations, finance, utilization patterns, logistics and supply chain management, quality of services offered,

¹ Subodh Satyawadi (2011) Emergency Management - Synergizing research, technology and good governance towards a world-class healthcare delivery system .Indian Emergency Journal, Vol. VI/Issue-II/September. pp. 01-03

community needs, challenges and issues in managing the emergency response system state of Karnataka.

The study was conducted in ten districts in Karnataka for a period of 6 months and focused on the three cardinal pillars of EMRI i.e. sense, reach and care. It involved the assessment of awareness and intervention in the community, evaluation of performance of service providers and identification of gaps, inadequacies and excess.

The evaluation study brought out various dimensions of the EMRI services in the state. Study findings on operational efficiency revealed that currently there are 517 ambulances in the state with 511 functional ambulances with each ambulance offering about 3-4 trips per day. The average trips in the past three years have recorded slight variation from an average of 3.5 trips per day per ambulance in FY 2010-11 to an average of 3.28 trips per day per ambulance in FY 2011-12 and 3.25 trips per day per ambulance in FY 2012-13. It was found that the distance travelled per trip has increased from 41 km in FY 2010-11 to around 40.6 km in FY 2011-12 and 46.6 km in FY 2012-13. The operating cost per trip has increased over the years from financial year 2010 to 2013. In FY 2010-11, with an average of 3.5 trips per day and average distance of 41 km travelled per trip, it costed Rs 898 per trip for an average of 515 ambulances. While in years 2011-12 and 2012-13, with 517 ambulances and an average of 3.25 and 3.28 trips per day respectively, it costed Rs 934 and Rs 934 respectively per trip. Similar to cost per ambulance per trip, the cost per ambulance per day also increased from Rs. 11.32 lakhs in the FY 2010-11 to Rs 12.89 lakhs in FY 2012-13 - almost the same number of ambulances and average trips.

If the standard norm of 1 ambulance per 1 lakh population² is considered, it emerged that more ambulances need to be provided in order to meet the demand. It was seen during the study that around 99% of services utilised out of all the emergency services available under the EMRI 108 model were mainly medical emergencies within which 51% cases were pre-hospital related³.

Findings from community survey revealed that 95% of the respondents were aware of ambulance services in which 72% respondents were aware on how to contact 108.

² nrhm.gov.in (n.d.) EMRI/Patient Transport Service, Emergency Medical Transport System [WWW] nrhm.gov.in, Available from : <http://nrhm.gov.in/nrhm-components/health-systems-strengthening/emergency-medical-transport-service.html> [Accessed on 6/5/2013]

³ According to secondary data collected from EMRI

ambulance. The facility in-charges also perceived that most of the beneficiaries were aware of the services. It also revealed that 87.9% (669) of respondents, out of the respondents who availed emergency services (761) reported to have used EMRI 108 ambulance, 11.1% of respondents used private or personal vehicle and 1% of respondents were unaware of the type of transport which was used. Also, 74% respondents (1004) reported that their neighbours used EMRI 108 service recently for a case of emergency. The study findings from the primary data revealed that pregnancy related cases constituted around 74.7% of the cases for which the respondents availed 108 ambulance services. Other emergency medical services for conditions like accidents and injuries, acute abdomen, chest pain, respiratory problems, suicide and poisoning were some of the many emergency services from which the beneficiaries have clinically benefited.

In spite of the benefits of the 108 service to the community, there have been few problems faced by the community, facility in-charges of the healthcare facilities as well as EMRI. The average time to reach the spot for 108 was found to be within 30 minutes (80.4% respondents) to most of the areas. However, few cases of delay (19%) were reported. It is to be noted that the delay sometimes may be due to the distance, vehicle breakdown, route problems, uneven terrain, bad road conditions, traffic congestion and delay in dispatching of the vehicle because of non-availability. One alarming fact which arose from the study was that even though the 108 ambulance service is free of cost, there were 12 % cases in which the beneficiary was charged. Also, two FGDs revealed incidents of beneficiary being charged.

Around 85 % of the respondents felt that ~~that~~ people in their community were availing the 108 services. Out of the respondents who availed 108 ambulance service, 81.3% of the respondents were fully satisfied with the various aspects of EMRI 108 services. 60.2% of the respondents who availed the 108 service said that the behavior of the driver was very good. Also, 56.7% of respondents who availed the 108 services were fully satisfied with the behavior and skills of the paramedical staff in the ambulance. Ninety nine percent of the respondents who availed 108 service preferred 108 ambulance service in case of any future emergencies.

The findings from facility in-charges interview revealed that there were some concerns on the overload of cases owing to lack of information on services offered at each level by the facility by the EMRI ambulance staff and lower facility staff leading to misreferrals. There

were also few cases of stock outs of essential drugs and oxygen cylinders reported in the qualitative survey of facility in-charges.

It was mentioned by the stakeholders that there are several cases of misuse of ambulances where there are illegitimate calls and also the calls where the case is minor and not serious.

Manpower planning and training plays a crucial role in the efficient functioning of an emergency response service. The paramedical staff and drivers form the backbone of the entire ERS. Optimum staff to vehicle ratio forms the crux of a well managed system. The ratio was around 2.5 EMTs and 2.5 PILOTS (drivers) on an average per ambulance between 2010-13. Along with this, training and development forms an essential part of the system. Some lag in the training in terms of patient stabilisation, infection control, communication and coordination was reported by the facility in-charges and also revealed in the interviews with the staff. There were incidents reported of inadequate patient stabilisation by a few facility in-charges.

This study brought out a holistic view of the entire EMS system in the state of Karnataka. It can be concluded from the study that the EMRI 108 service has brought a revolutionary change in the emergency transport system and pre-hospital care in Karnataka. Recommendations were made based on the study findings to strengthen the system from both the Government and EMRI to eliminate the bottlenecks will enable the system in the state to strive towards excellence in the field of emergency management research.

⁴ a. Patient calls and ambulance dispatched but on reaching the spot, patient left
b. Calls for general transportation claiming it is emergency
c. Calls for minor ailments like mild fever, headache, mild stomach ache
d. Calls from alcoholics
e. Two or more calls for same patient
f. Calls made with wrong details provided

Chapter 4: FINDINGS

I. SURVEY HOUSEHOLD CHARACTERISTICS

The Primary Survey was conducted in 10 districts which were selected on the basis of the methodology mentioned in chapter 3. Totally 1357 households were surveyed with the help of the questionnaire which was developed. It was ensured that the methodology of surveying households was based on the distance from the PHC. The households surveyed per district ranged from 47 to 315.

Table 1: Detail of Districts Surveyed for the Study

S.No.	District	Surveyed Houses	
		Frequency	Percent
1	Belgaum	179	13.2
2	Bellary	90	6.6
3	Bidar	47	3.5
4	Bijapur	135	9.9
5	Chamarajnar	141	10.4
6	Chitradurga	135	10
7	Dakshina Kannada	135	10
8	Kolar	90	6.6
9	Mysore	315	23.2
10	Raichur	90	6.6
	TOTAL	1357	100

Table 2: Distribution of Survey Households

Distance from PHC	Frequency	Percent
Inner one-third	462	34.0
Middle one-third	464	34.2
Outer one-third	431	31.8
Total	1357	100.0

Thirty four percent of the households surveyed fell within inner one-third radius, 34.2% fell between inner one-third and middle one-third radius of and 31.8% fell between the radius middle one-third and outer one-third.

Demographic Characteristics

The highest number of respondents (50.6%) belonged to the age group of 30 to 49 years followed by 0 to 29 groups (41.4%). The least number of respondents belonged to the age group of 70 to 100 (0.8%). The average age of the respondents was 33 yrs with a standard

deviation of 10. The maximum age of the respondent was 89 years and the minimum was 17 years.

Table 3: Demographic Profile of Respondents

Variable	Frequency	Percent
Age in Years		
0-29	562	41.4
30-49	686	50.6
50-69	98	7.2
70-100	11	0.8
Gender		
Male	605	44.6
Female	752	55.4
Religion		
Hindu	1218	89.8
Muslim	119	8.8
Others	20	1.5
Caste		
SC/ST	691	50.9
OBC	329	24.2
Others/General	337	24.8
Marital Status		
Married	1214	89.5
Unmarried	143	10.5
Type of Family		
Nuclear	1016	74.9
Joint	341	25.1
Total	1357	100

Table 4: Age distribution

Age Statistics	
Number	1357
Mean	33.2078
Std. Deviation	10.28601
Range	79.00
Minimum	10.00
Maximum	89.00

Females comprised of 55.4% of the survey respondents and males comprised of 44.6% of the survey respondents. About 89.8% of the respondents belonged to Hindu religion, followed by Muslim (8.8%) and other religion comprised of 1.5% of the respondents. People who belonged to Scheduled Caste (SC) or Scheduled Tribes (ST) comprised of almost half (50.9%) of the respondents of the survey population. The remaining half comprised of General or Others (24.8%) and OBC (24.2%). Most of the respondents were married comprising of 89.5% and unmarried comprised of 10.5% of the survey respondents. Around 74.9% of the respondents belonged to nuclear family and 25.1% belonged to joint family system.

Socio-Economic Status

Table 5 and 6 below depicts the socio-economic status of the respondents of the survey comprising of Education, Occupation, Colour of Ration Card and Economic Status. The highest percentage of people were Illiterates (23.7%) followed by Primary school educated (20.7%), Just Literate (19.2%), Secondary School (13.7%), Middle School (13%), Higher Secondary (7.2%), and Graduate and above were least (2.4%).

Table 5: Socio-economic status of respondents

Variable	Frequency	Percent
Educational Status		
Illiterate	322	23.7
Just Literate	261	19.2
Primary	281	20.7
Middle School	176	13
Secondary	186	13.7
Higher Secondary	98	7.2
Graduation and Above	33	2.4
Occupation		
Agriculture and Animal Husbandry	343	25.3
Service (Govt. or Pvt.)	35	2.6
Business	49	3.6
House wife	447	32.9
Skilled Labour	124	9.1
Unskilled Labour	310	22.8
Unemployed/Student	49	3.6

Total Respondents =1357

The highest number of respondents were housewives (32.9%), followed by Agriculture or Animal Husbandry (25.3%), unskilled labourers (22.8%), skilled laborers (9.1%), Business and unemployed/student category comprising of 3.6% each, and least number of respondents belonged to the service sector (Govt. or Pvt.) comprised of only 2.6% of the respondents.

Most of the surveyed respondents had green colour ration card (84%), followed by red color card (4.5%) and the least number of people had yellow card (1.8%). Around,7% of the surveyed population did not have any type of ration card.

The economic status of the surveyed population was classified according to World Bank and also B.G. Prasad classification.

Table 6 : Economic Status of Survey Respondents

Economic Status of Respondents		
Colour of Ration Card	Frequency	Percentage
White	36	2.7
Yellow	25	1.8
Red	61	4.5
Green	1140	84
No Ration Card	95	7
Total	1357	100
Economic class as per WHO classification		
Classification	Frequency	Percent
\$ 1.25 per capita per day	1263	93.07
>\$ 1.25 per capita per day	94	6.93
Economic class as per the B G Prasad classification		
Classification	Frequency	Percent
Lower Class	662	48.9
Lower Middle Class	502	37.3
Middle Class	166	12.2
Upper Middle Class	22	1.6
Upper Class	1	0.1
Total	1357	100

As Per World Bank categorization, 93.07% were earning less than \$ 1.25 a day and only 6.9% were earning more than \$ 1.25 a day. As per B.G. Prasad's classification, almost half (48.9%) of the respondents belonged to lower class, followed by 37.3% who belonged to lower middle class and 12.2% belonging to middle class. The least respondents belonged to upper class (0.1%) followed by upper middle class (1.6%).

II. FINDING FROM COMMUNITY SURVEY AND SECONDARY DATA

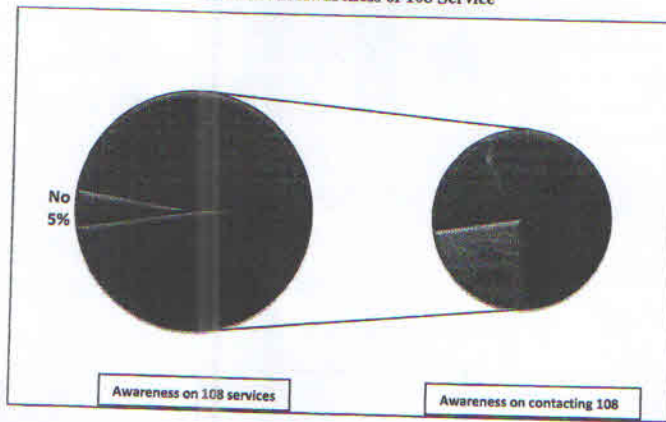
1. AWARENESS

Community awareness on the emergency services offered is of prime importance in order to make the community well informed on how to utilize the service, when to utilize the service and also be self-reliant and capable of availing the services.

1.1 Awareness of 108 Service

From the community survey conducted, it was seen that 95% of the respondents were aware of the 108 services, 72% of respondents were aware on how to contact the 108 service and only 5% respondents were unaware. Hence, out of the respondents who were aware of 108 EMRI services, 76% respondents were aware on how to contact the 108 EMRI services. The Pie chart below depicts the awareness status of the community on the 108 EMRI services.

Pie chart 1: Awareness of 108 Service



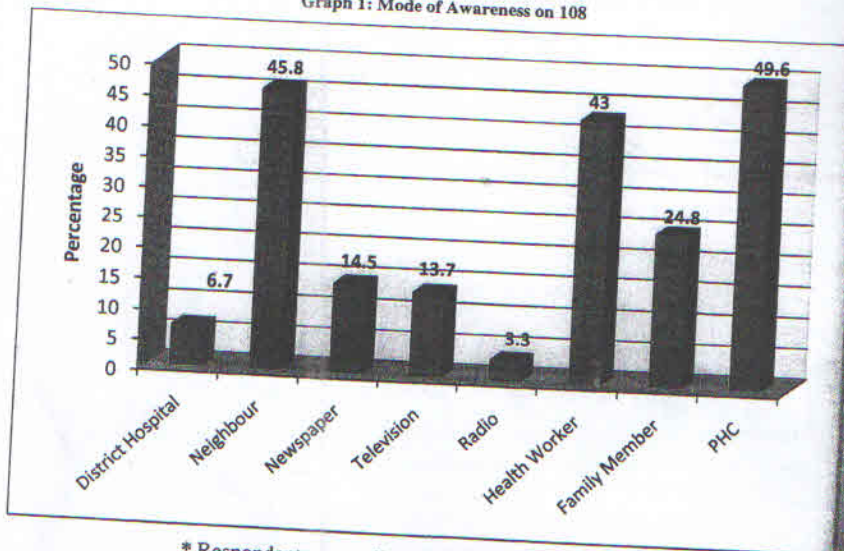
Also, from the FGDs conducted, it was noted that in case of an emergency, majority of the participants were aware on how to contact the 108 services and request an ambulance. Some participants also reported that in case of an emergency, they call PHC/ASHA worker and ask them to inform EMRI Personnel. Majority of the participants also reported that almost everyone in their village is utilizing the 108 services. Also, all the FGDs have reported that their phone calls were responded immediately.

1.2 Mode of Awareness

It was seen that almost half of the respondents (49.6%) were aware of the 108 service through PHC, followed by through Neighbor (45.8%) and through Health worker (43%). The other modes of awareness were through family member (24.8), Newspaper (14.5%), T.V (13.7%), DH (6.7%) and Radio (3.3%). Graph 1 below depicts the mode of awareness on the 108

service which says how the respondents were made aware of the 108 ambulance in the district or village.

Graph 1: Mode of Awareness on 108



* Respondents were allowed to give multiple answers

2. EQUITY ISSUES AND UTILISATION PATTERNS

2.1 Overview of distribution of 108 Ambulances Services in the State

The distribution of ambulance is based on the population¹⁴ of each district. It is expected that there need to be one ambulance per lakh population in each district in order to meet the demand for emergencies and respond timely and have quick referral to the healthcare facility.¹⁵ There are totally 517 (130 ALS and 387 BLS), ambulances operating in the state of Karnataka. Table 7 below shows the distribution of ambulances in all the 10 study districts of Karnataka. Among the study districts, Belgaum and Mysore districts have the highest number of ambulances of 41 and 27 respectively keeping in consideration the population distribution in the districts. Chamarajanagar and Kolar districts have least number of ambulances of 10

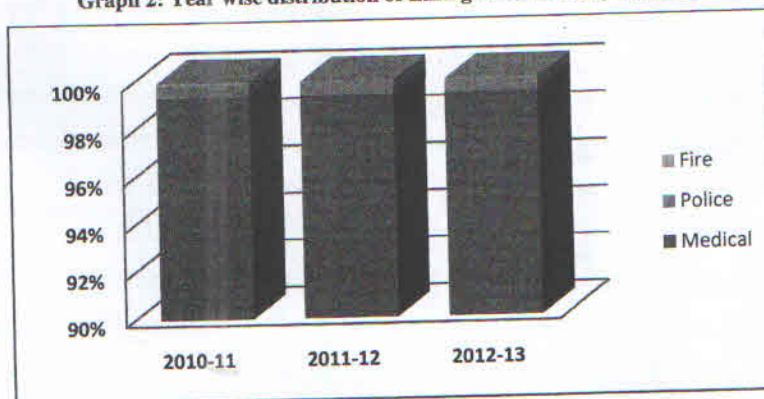
¹⁴ Census of India (2011) "Provisional Population Totals Paper 1 of 2011: Karnataka", Office of the Register General, New Delhi, India.
¹⁵ nrhm.gov.in (n.d.) EMRI/Patient Transport Service, Emergency Medical Transport System [WWW] nrhm.gov.in, Available from : <http://nrhm.gov.in/nrhm-components/health-systems-strengthening/emri-patient-transport-service.html> [Accessed on 6/5/2013]

2.2 Utilisation of Emergency Services

2.2 a Based on type of emergency (Medical, Police, Fire)

The 108 ambulance service caters to medical, police and fire emergencies occurring in the districts. The total emergencies stand at an average of 2.5 lakh¹⁸ each year in the study districts. It can be seen from Graph 2 that medical emergencies were the major cause out of all the emergencies attended by 108 service among the study districts. The percentage of medical emergencies stands at an average of about 99%. In 2010-11, 2011-12 and 2012-13, the percentage of medical emergencies out of all the emergencies was 99.39 %, 99.39% and 99.44% respectively. It was seen that police emergencies were the next cause out of all the emergencies attended by 108 service among the study districts. The percentage of police emergencies stands at an average of about 0.55%. In 2010-11, 2011-12 and 2012-13, the percentage of police emergencies out of all the emergencies was 0.52 %, 0.60% and 0.53% respectively.

Graph 2: Year wise distribution of Emergencies in Study Districts



It is also seen that the percentage of fire emergencies out of all the emergencies attended by 108 service in the study districts were the lowest. The percentage of fire emergencies stands at an average of about 0.05%. In 2010-11, 2011 -12 and 2012-13, the percentage of fire emergencies out of all the emergencies was 0.09 %, 0.01% and 0.03% respectively.

2.2 b Day and Night Utilization Pattern of EMRI s 108 services

The day and night utilization patterns for EMRI's 108 services in the study districts revealed that there was almost equal utilization of 108 services both in the day and night. Out of a total

¹⁸ Secondary data provided by EMRI

and 14 respectively keeping in consideration the population distribution in the districts. It was noted in the study that most of the study districts have less than expected number of ambulances.

Table 7: Overview of distribution of 108 Ambulances Services in the sample districts

S. No.	Districts	Percentage distribution of Population ¹⁶	Present number of Ambulances	No. of ambulances per one lakh population	No. of Ambulances to be allotted ¹⁷	Deficiency in ambulances
1	Belgaum	7.8	41	0.86	47.8	6.8
2	Bellary	4.1	20	0.79	25.3	5.3
3	Bidar	2.8	15	0.88	17	2
4	Bijapur	3.6	18	0.83	21.8	3.8
5	Chamarajanagar	1.7	10	0.98	10.2	0.2
6	Chitradurga	2.7	16	0.96	16.6	0.6
7	Dakshina Kannada	3.4	17	0.82	20.8	3.8
8	Kolar	2.5	14	0.91	15.4	1.4
9	Mysore	4.9	27	0.90	29.9	2.9
10	Raichur	3.1	17	0.88	19.2	2.2
	TOTAL	36.6	195	0.85	224.1	29.1

Among the study districts, Chamarajanagar and Chitradurga are the only districts which have almost adequate number of vehicles. Bellary, Bijapur and Dakshina Kannada districts have the least number of vehicles standing at 0.8 ambulances per lakh population. Belgaum, Bidar, Kolar, Mysore and Raichur districts have 0.9 ambulances per lakh population. Hence, it was seen that amongst the sampled districts which constituted 36.6% of the total state population, there were totally 195 ambulances deployed. This gave an average of 0.85 ambulances per 1 lakh population which is less than the standard norm of 1 ambulance per 1 lakh population. Considering the same standard norm, it was seen that in the study districts there was a deficiency of around 29 ambulances with maximum deficiency recorded in Belgaum district which constitutes 7.8% of the total state population.

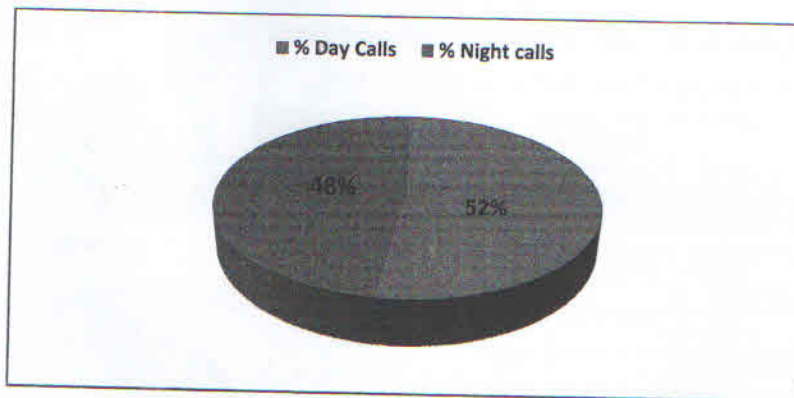
Similarly, the average number of ambulances per lakh population in the state is 0.85, and the state needs approximately another 94 ambulances to meet the demand and achieve the expected number.

¹⁶ Percentage calculated with respect to the state population, Source: Census of India (2011)

¹⁷ Taking the standard as 1 ambulance per 1 lakh population

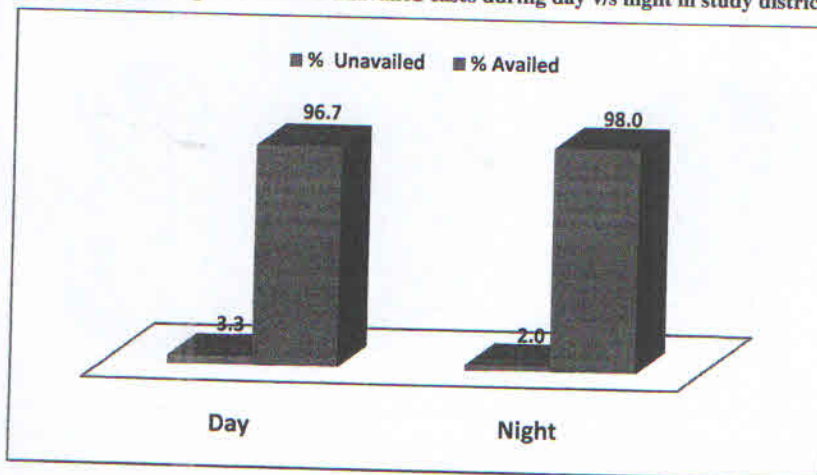
calls of 706806 received by EMRI in FY 2010-13 from the study districts, the day utilization was 52% of the total calls received and night utilization was 48% of the total calls received.

Pie chart 2 : Utilisation of 108 Service Day v/s Night in study Districts



The percentage of availed and unavailed services also showed similar patterns in day and night. Out of a total of 368154 calls received during day from the study districts in FY 2010-13, the percentage of availed cases was 96.7% of the total calls received during the day with only 3.3 % unavailed cases. In the night with 338652 calls received from study districts, the percentage of availed cases was 98% of the total calls received during the night with only 2% unavailed cases.

Graph 3: Percentage availed and unavailed cases during day v/s night in study districts



2.2 c Utilisation of Emergency Services by Community Survey

Availed cases are defined as the cases where the 108 service has reached the spot and carried the patient to the hospital.

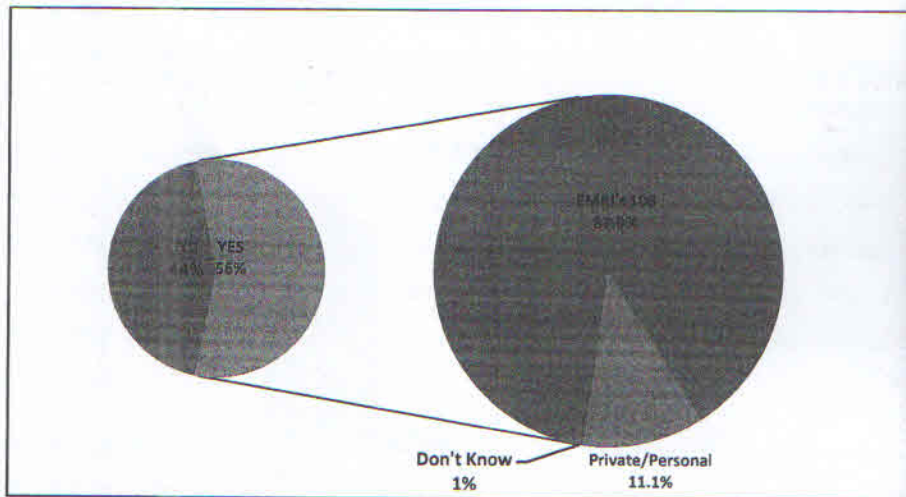
From the 1357 respondents interviewed, 56% of respondents reported to have required emergency services for one of their family members recently.

Table 8 : Emergency service (health, fire) required in recent time

Emergency Service (Health, Fire) Required In Recent Time by Family Member		
Response	Frequency	Percent
Yes	761	56%
No	596	44%
Total Respondents	1357	100%

Out of the 761 respondents who required the emergency transportation services, 87.9 % (669) of respondents reported to have availed 108 ambulance service, 11.1% of respondents use private or personal vehicle and 1% of respondents were unaware of the type of transport which was used.

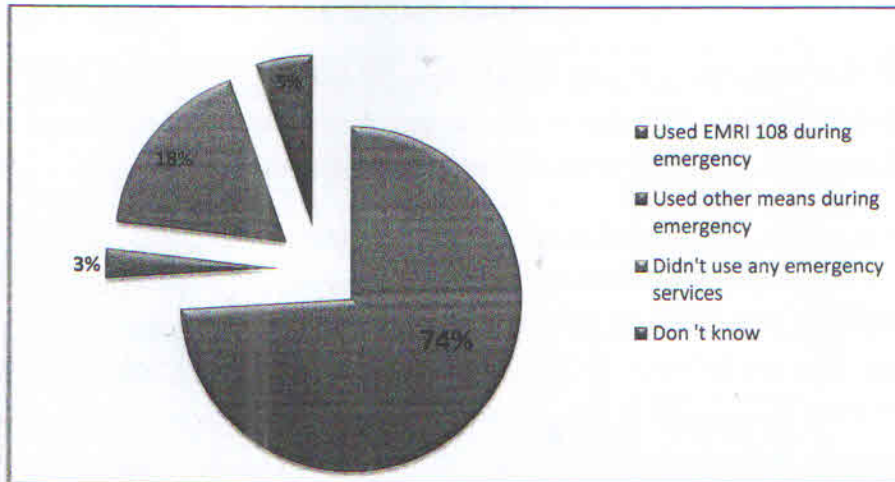
Pie chart 3 : Emergency service availed in recent time by respondent's family member



Also from the ten FGDs conducted, majority of the participants responded that they used the 108 ambulance service. Very few participants informed that they sometimes use private bus, auto or own vehicle like jeep.

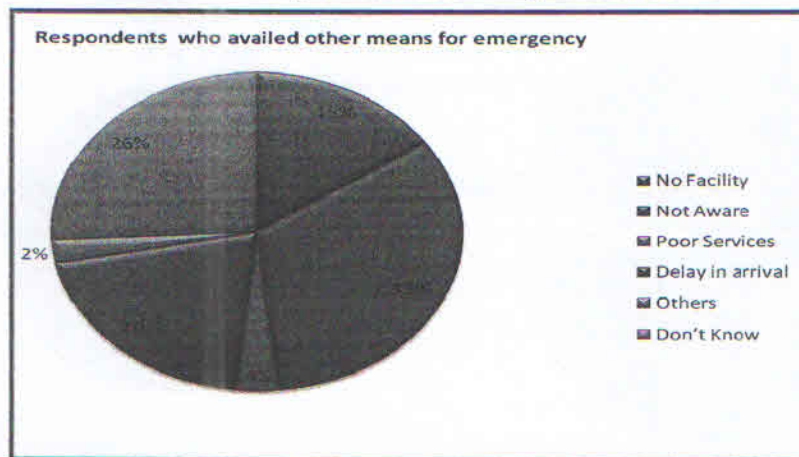
Also, 74% respondents (1004) reported that their neighbours used EMRI 108 service recently for a case of emergency as shown in pie chart 4 below.

Pie chart 4 : Emergency services availed by neighbours of survey respondents



Out of the respondents who availed private or personal vehicle in case of an emergency, the main reason for not using the 108 service was lack of awareness (33%), followed by delay in arrival in previous instances (20%). Very few respondents (4%) felt that it was due to poor service.

Pie chart 5 : Reason perceived for not availing EMRI 108 services



Similarly, in the FGDs also, the main cause of concern was the ambulance arriving late on few occasions due to which the people had to arrange other means of transportation to a certain distance.

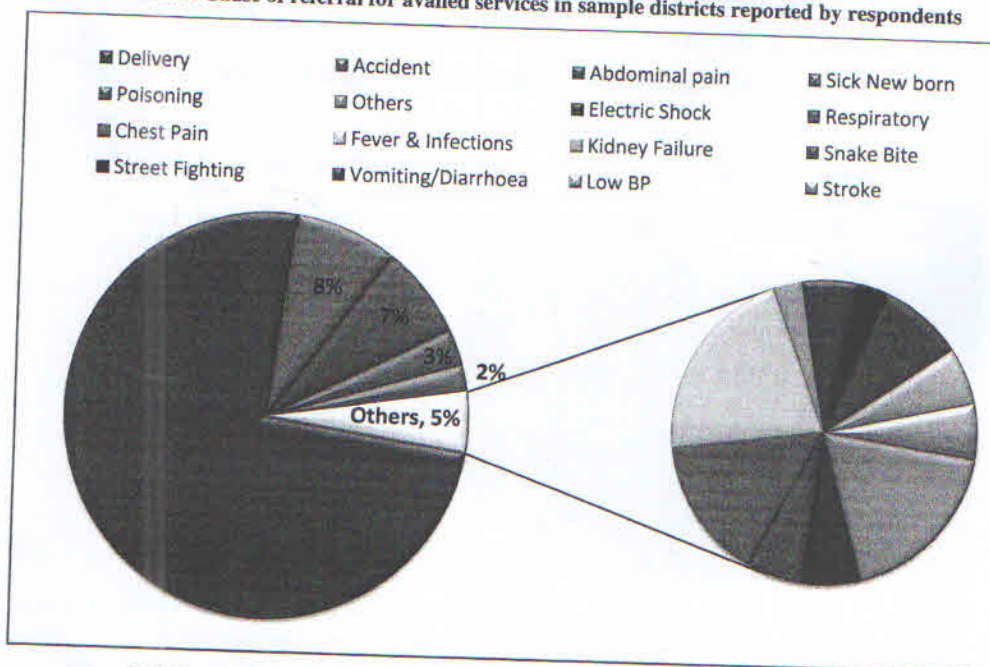
Majority of respondents (87%) felt that people in their village are availing 108 ambulance services for any emergency cases.

2.2 d Distribution of Medical Cases Reported

The availed cases were mainly divided into accidents (RTA/Injury), delivery (Pregnancy related cases), Suicide and Poisoning, Abdominal pain (acute abdomen), sick newborn (neonatal cases) and other cases like fever, chest pain, respiratory ailments etc.

Findings from primary data indicated that out of the respondents whose family member availed the service, delivery cases constituted 74.7% of emergency cases for which the family member availed 108 service amongst all the reported cases for which emergency transport was required. This was followed by accident cases and abdominal pain cases which constituted 7-8% of the total number of cases for which emergency transport was availed by the family member. Pie chart 6 below shows the various reasons for which 108 service was availed by respondents family members.

Pie Chart 6: Cause of referral for availed services in sample districts reported by respondents



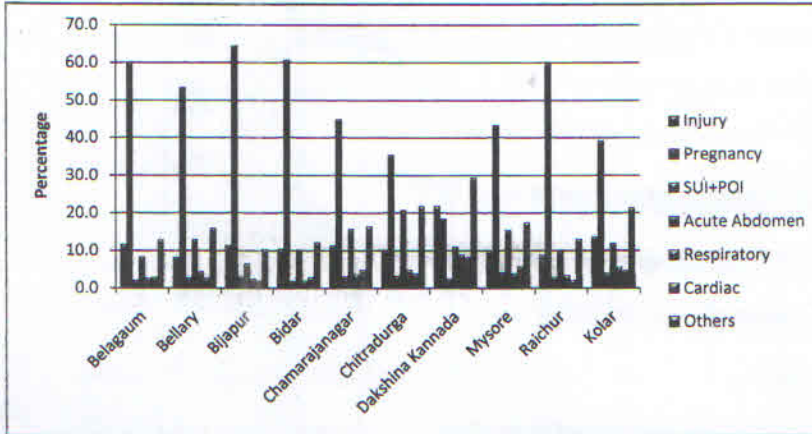
* This question was asked only to respondents who availed the service

Out of all the ten focus group discussions conducted, in eight FGDs, it was reported by participants that 108 facility availed by them was for delivery cases. The next common ca

2.2 f Area wise distribution of emergency cases

The area wise distribution of emergency cases showed that in almost all the districts, the 108 Emergency services were availed mainly for pregnancy related cases except in Dakshina Kannada (which represents the Category A districts in the sample) where the services were availed mainly for minor cases like fever, unconsciousness, assaults (27% 'others' category in graph 6) followed by injury (21.7%) and pregnancy cases (18.5%).

Graph 5 : Districtwise Distribution of medical cases in study districts (FY 2010-13)



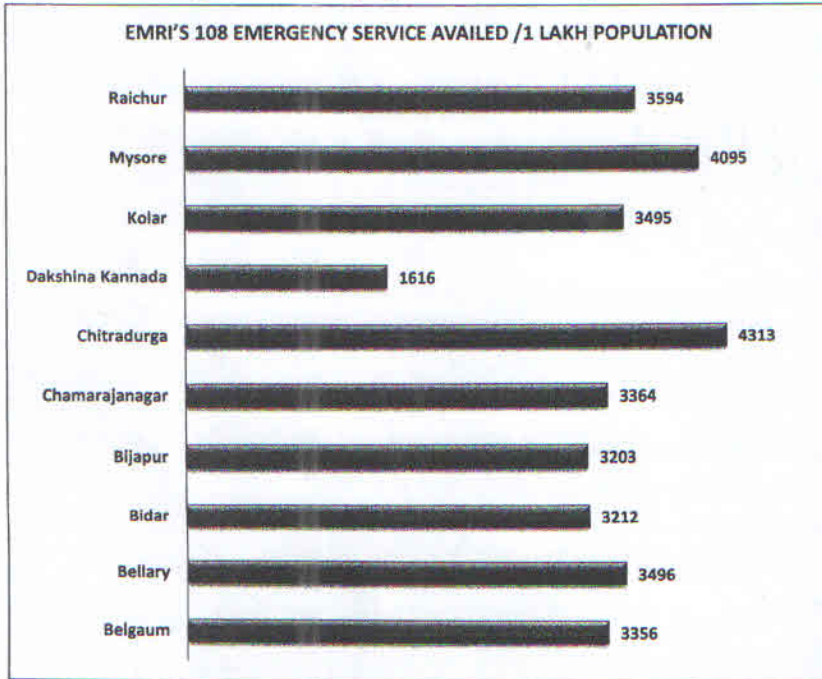
Apart from pregnancy related cases, accidents/injuries, acute abdomen, suicide and poisoning, respiratory and cardiac cases, the other cases comprised of mainly cases of fever in most of the districts followed by assault/violence cases. It was noted that there were many cases which could not be identified or clearly categorized by the EMRI officials and were hence designated under the "others" category.

Graph 6 below represents the breakup of cases for others category in graph 5.

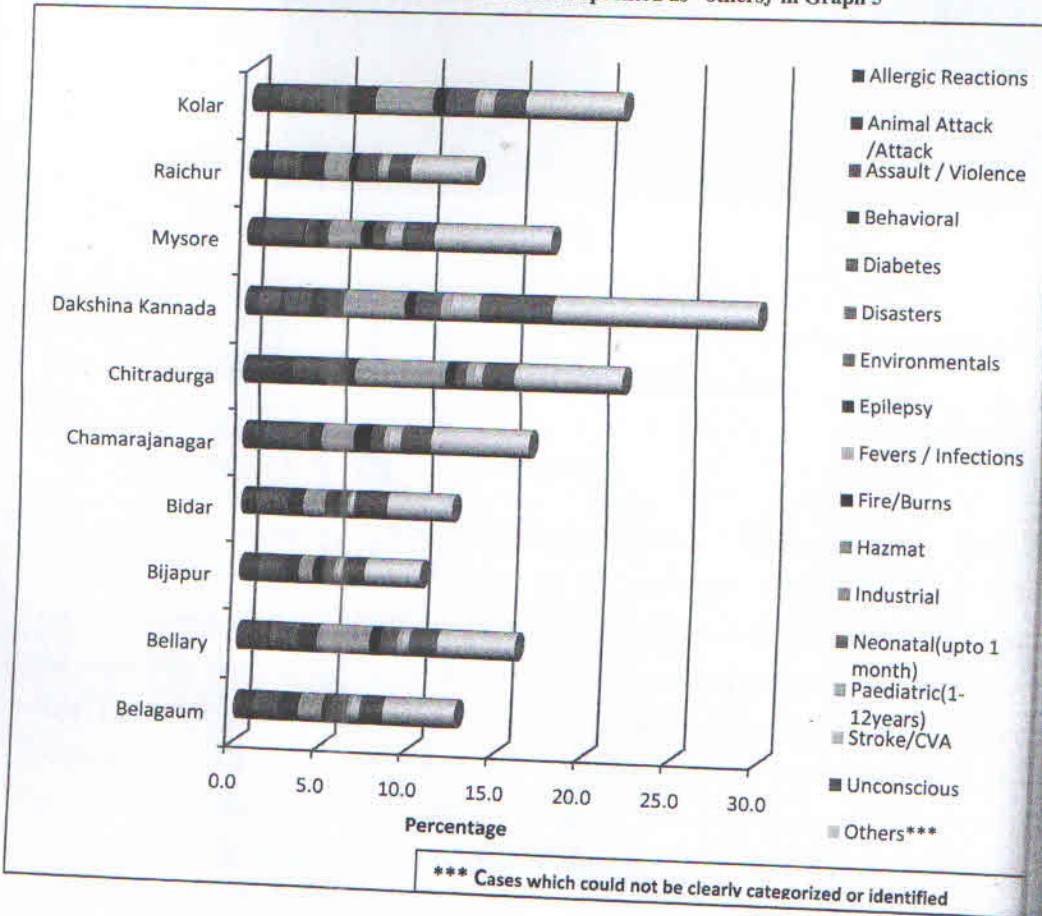
2.2 e Districtwise Distribution

The districtwise comparison of the total emergencies availed through EMRI's 108 revealed that the EMRI 108 emergency services availed per one lakh population in the study districts was maximum in Chitradurga District at 4313 emergencies per 1 lakh population in 3 years (71607 emergencies for a population of 1660378) followed by Mysore District with 4095 emergencies per 1 lakh population in 3 years (122633 emergencies for a population of 2994744). The least number of emergency services availed through EMRI 108 was in Dakshina Kannada with 1616 emergency services availed through EMRI per 1 lakh population (33668 emergencies for a population of 2083625).

Graph 4: EMRI's Emergency services availed in Study Districts



Graph 6 : Districtwise distribution of cases specified as othersf in Graph 5



3. COST PAID BY THE CLIENTS AVAILING 108

One of the key features of EMRI 108 service is its cashless nature. The service is free of cost irrespective of who avails it, distance, type of emergency service, and facility where the patient is handed over. It was observed that from all the respondents, 88% of the clients who availed 108 service have not paid any amount after availing the service. However 12% of the respondents claimed to have paid money to the health staff or driver after availing the service. Also, in two of the villages where FGD was conducted, i.e. Ashoknagar and Goolgeri the participants reported incidents where they were charged by the ambulance staff for transporting the patient.

Chapter 5: CONCLUSIONS , REFLECTIONS AND DISCUSSIONS

This study brought out various dimensions of the Emergency Response Services (EMRI Model) in Karnataka. The various conclusions of the study are as follows:

1. Awareness , Availability and Accessibility

The service is accessible to majority of the people. Responses from the community revealed that 95% of the respondents were aware of 108 ambulance services in which 72% respondents were aware on how to contact the 108 ambulance. Most of the people who used the service felt that it is easy to call the 108 ambulance and reported that their phone calls were responded immediately. The main source of awareness is through IEC materials displayed in PHCs and through ASHA and ANM workers. The facility in-charges also perceived that most of the beneficiaries were aware of the services and the service is accessible to all the people. The FGDs revealed that majority of the community were aware and used the 108 ambulance service.

This study revealed that most of the study districts have less than expected number of ambulances if we consider the standard norm of one ambulance per one lakh population and the functional ambulances as 517. Ninety Four (94) additional ambulances are required to fulfill the state deficit.

2. Utilization

Ninety Nine percent of services utilised out of all the emergency services availed through EMRI 108 model were mainly medical emergencies and less than 1% utilization is for fire or police emergencies.

About 88% of community utilization of 108 services was observed at the community level as it is a free service but at the same time cases of misuse have been reported. The main reasons

stated by the respondents for not availing 108 services by the people during emergency was found to be lack of awareness (33%) and delay in arrival (20%).

The study findings from the primary data revealed that pregnancy related cases constituted around 74.7% of the cases for which the respondents availed 108 ambulance services. From one percent cases from the secondary data collected were pregnancy related.

There can be various reasons for this kind of a utilization pattern. One of the main reasons can be that the community is not aware of the scope of services that the EMRI ambulance provides. Also, the common perception may be that an ambulance is utilized only for medical reasons and services like 101 and 100 are utilized for fire and police services. Another reason can be lack of coordination for fire and police services as it requires interagency coordination and cooperation. However, when the EMRI officials were interviewed, they stated that there is good cooperation between the police and fire departments. Also there is regular follow up in such cases.

Average number of trips per ambulance per day has dropped from 3.5 to 3.3 whereas the average kms travelled per ambulance per trip has increased by around 5 kms. The average time to reach the spot for 108 was found to be within 30 minutes to most of the areas. It was also highlighted by few medical officers that because of the delay in getting the vehicle people do not wait and arrange for other means of transport during emergencies.

The maximum utilization was seen in Chitradurga district which also reported maximum cases of delay as reported in the community survey. The minimum utilisation was seen in Dakshina Kannada District which represented the A category districts. Dakshina Kannada also reported maximum percentage of unavailed cases pointing out the fact that in such districts people are not efficiently utilizing the services.

3. Equity issues

There was no evidence found for any kind of discrepancy in terms of socioeconomic status, distance from PHC, or any other demographic characteristic. Even though the 108 ambulance service is free of cost, there were some cases reported where the beneficiary was charged. In 12% cases, the beneficiary was charged for the 108 services availed.

4. Infrastructure and facilities

Reported data from the EMRI showed that currently, out of the 517 ambulances (130 ALS and 387 BLS), 511 ambulances are in functional state.

There was tremendous appreciation of the infrastructure and facilities including the vehicle, equipments, cleanliness and call centre.

There were few observations on the vehicles that are old and need replacement for better transportation. Also, some have said that in few cases the oxygen cylinders were found empty and the emergency drugs were out of stock.

5. Communication and Screening

It has been mentioned by both the stakeholders that there are several cases of misuse happening, where there are illegitimate calls and also the calls where the case is minor. However, these are only a fraction of the large number of genuine calls received by EMRI which require 108 services.

In some instances, there is no proper details provided by the clients, and there are other cases where many people call to 108 services to avail vehicle for a single patient with inadequate details. This leads to dispatching of one or two vehicles for a single case resulting in inefficient utilization of resources.

6. Timeliness

The average time to reach the spot for 108 was found to be within 30 minutes to most of the areas. Few respondents (19 %) reported cases of delay.

It is to be noted that the delay sometimes may also be due to the distance, vehicle breakdown, route problems, uneven terrain, bad road conditions, traffic congestion and delay in dispatching of the vehicle because of non-availability. One of the reasons stated by EMRI for delay in ambulance arrival is interfacility transfer which was also stated by few facility in-charges.

7. Facility Interfacing

According to the community survey, 97% of the patients were transported to Government facility by the 108 ambulance. Preference to higher facility was seen in the study (66.6%

PHC-TH, 90% General practitioner-TH, 55.4% Beneficiary-TH). Many patients preferred to reach the higher facility even though the treatment could be provided at lower facilities like PHC/CHC. Similar preference was observed within the ambulance staff wherein patient was transferred to a higher facility. Cases of misreferral was cited as one of the problems faced by the facility in-charges. The secondary data also showed that around 2% calls received were for interfacility transfers.

8. Vehicle Busy Cases

The study revealed that the percentage of vehicle busy cases has increased by 7.32% from FY 2011-12 to 2012-13. The percentage of vehicle busy has increases drastically from FY 2011 to 2013. It was only 3.9% in FY 2010-11 whereas it increased to 11.1% in FY 2012-13.

Though the EMRI officials reported the reason for increase in the numbers to be due to change of definition, it is recommended that the exact root cause for such cases be probe deeply.

9. Human Resources, Training and Development

The average EMTs per ambulance and PILOTs per ambulance is 2.5 each. It was reported by EMRI officials that one of the reasons for employees leaving was due to relocation from the preferred native place. Also, they reported that no accommodation was provided to the ambulance staff by EMRI. There is lack of follow up for vaccination of employees. Also was noted that employee satisfaction survey takes place only every two years which is inadequate.

There were few cases reported where there was lack of proper stabilization and management of the condition by the EMRI staff in the vehicle.

10. Grievance mechanism

Though EMRI officials reported to have a grievance redressal mechanism, awareness among the community and facility in-charges regarding the same was lacking.

11. Community Satisfaction

Out of the respondents who availed 108 ambulance service, 81.3% of the respondents were fully satisfied with the various aspects of EMRI 108 services. Also, 56.7% of respondents

who availed the 108 services were fully satisfied with the behavior and skills of the paramedical staff in the ambulance. 60.2% of the respondents who availed the 108 service said that the behavior of the driver was very good. Ninety nine percent of the respondents who availed 108 service preferred 108 ambulance service in case of any future emergencies.

EMRI service was considered better than the Taluk Hospital ambulance by 75% of taluk hospital in-charges and was considered better than the District Hospital ambulance by 60% of the District Hospital in-charges.

12. Documentation and Accountability

Though there is sufficient documentation done by the EMRI staff, there is lack of documentation of the emergency cases received or transferred by 108 ambulance at the facilities like PHC, Taluk Hospital and District Hospital.

13. Infection Control

It was reported that bio medical waste was segregated and disposed at a nodal point. There was no documentation on the disposal of waste maintained. Also lack of documentation for sterilization procedures for the ambulance equipments, made it unclear on how and where the equipments were sterilized.

Chapter 6: RECOMMENDATIONS

The following recommendations were made from the study findings in order to strengthen the existing ERS (EMRI 108 model) system by removing the bottlenecks:

- ▶ A total of 94 ambulances to be deployed in the state in address the deficit of ambulances and increase availability.
- ▶ The standard for ambulance allocation can be redefined to 1 ambulance per 60,000 population. This will help to cater the need in districts where more emergencies are reported.
- ▶ Having analysed the utilisation pattern of ambulance services, it is recommended that 108 service be used only for medical services and in fire and police cases only if medical intervention is required.
- ▶ Since most of the services utilized are for pregnancy related cases, it is essential to increase awareness about other medical emergencies for which the 108 ambulance can be availed through modifying the IEC material or training ASHA worker etc. This will ensure that the 108 service is not limited to be used just for pregnancy cases.
- ▶ For judicious use and to prevent misuse in case of illegitimate calls proper validation and screening procedures for calls received. Also, it is important to create awareness for the community regarding the judicious use and importance of the 108 service.
- ▶ Misreferrals to be handled by providing information to both EMRI staff and facility in-charges on the scope of services at each facility level. SOPs for the same to be formulated. Coordination between the Government and the EMRI service regarding sharing information available regarding the facilities available at the PHC and CHC level, and also by orienting the staff nurse and in charge of the CHC and TH regarding the problem faced and the expected responsibilities.

- ▶ Along with the mention of key features of EMRI like free service, types of service etc, it is of prime importance to make the community aware of the grievance mechanism through posters, IEC and through ASHA/ANM.
- ▶ Increasing the pool of ambulances by including the Taluk and District Hospital ambulances will help to cater to the load of interfacility transfers.
- ▶ Uninterrupted supply of emergency drugs to be ensured and near expiry drugs to be reported.
- ▶ Calibration of equipments has to be ensured. For Life Saving equipments, every 3 months calibration should be checked and certificates should be maintained in the ambulance. Non life saving equipments should be calibrated every 6 months and certificate should be maintained.
- ▶ Local people to be recruited so that issues of relocation and arranging accommodation can be rectified ensuring maximum employee satisfaction.
- ▶ Necessary training and upgrading the skills of EMRI staff to be imparted. Training on infection control and biomedical waste management should be included in the curriculum for ambulance staff.
- ▶ Follow up for vaccination of staff against infectious diseases should be included as one of the HR processes of EMRI to ensure employee safety.
- ▶ Employee satisfaction survey should be conducted on a more regular basis atleast every 6 months to get sensitized to various employee grievances and weak areas.
- ▶ The documentation process should be streamlined at all levels of the facility. Coordination between the 108 Ambulance staff and health facility staff should be maintained through proper training and sensitization.
- ▶ It is recommended that stringent protocols for disposal, waste management and infection control be laid and regular check and monitoring be ensured. Also training on infection control and biomedical waste management should be included in the curriculum for ambulance staff.