

*Mercy is twice blessed: A Study on Budget Variance of 108
Ambulance Services in Tamil Nadu*

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Abstract: There are immense requirements for the emergency services throughout the country for ambulance services that extent the services to the needy in the "golden hour", so it is necessary to evaluate the cost and budget allocation to the service and its effectiveness. If the expenses are reduced, number lives can be saved. The present study analyses the variances between budget amount that is allocated by the state and the actual amount spent towards ambulance services in the state. This study has used secondary data for analyzing and interpretation. The data were collected for the years 2013-14 to 2016-17. The data were analyzed and interpreted for four quarters in each year. Hence, the data were presented for every quarter. As a consequence, authorities need to take necessary steps to adopt a suitable / relevant method for making financial planning more accurate.

Keywords: Budget Variances, Emergency Services, Golden hour.

I. INTRODUCTION

The New Testament in the Bible contains the parable of a Good Samaritan, where a man who was a traveler, was beaten by robbers was well cared by a Samaritan. "He approached him and bandaged his wounds, by pouring oil and wine. Then he put the man on his own donkey, took him to a nearby inn and care for him." (Luke 10:34). Likewise during the Middle Ages, the Knights Hospitaller were known for rendering assistance to wounded soldiers in the battlefield. From the earliest times of human conflict, wounded soldiers were usually left on the battlefield, often for days, to die of thirst, cold or their pains and sufferings, being vulnerable to summary execution and looting by their enemies. (Dirk *et.al.*, 2015). Those who were recovered were transported by their compatriots to a place of care by whatever means was available to carry them.

In the sixth century, the armies of the Byzantine Emperor Mauricius had squads of horsemen set aside with suitably modified saddles to take wounded men to medical tents prepared for their care (Bell, 2009). In 1240, the wool porters of Florence inaugurated what eventually became the Company of the Brothers of Mercy to provide ambulance services for the city. It still exists today. Around 1476, Queen Isabella of Spain ordered the creation of specially constructed wagons for transporting wounded soldiers, and the concept was adopted by different armies throughout Europe (Bell, 2009).

Dominique-Jean Larrey, a French surgeon working in Emperor Napoleon's army in 1792, witnessed the fate of French soldiers at the battle of Limbourg, where the wounded lay for more than 24 hours before attempts were made to recover them. To remedy this situation, Larrey devised a comprehensive ambulance service to avoid delays, with surgeons and attendants treating casualties under fire before removing them on special carriages designed by him (Sultan Al-Shaqsi, 2010). They were called 'ambulance volantes', being based on a Napoleonic horse-drawn two-wheeled gun carriage which was taken onto the battlefield to evacuate the wounded to the safety of temporary tented hospitals for further treatment before removing them to conventional hospitals if necessary. Such temporary tented hospitals were also called 'ambulances' until the mid-nineteenth

century after which time the term 'field hospital' was started and the word ambulance being applied to the means of transport to care for the wounded persons.

St. John's Ambulance Association was inaugurated in 1877, initiated the first-aid training nationwide. Coalmines, iron works and railways in the northeast of England enthusiastically established workplace first-aid centres. The term, 'First Aid', was invented by the Association, and its handbook sold 28,000 copies in its first three years. The work of the St John's Ambulance Association became international, and by 1881, its sponsored courses were being taught all over the world, from Russia to New Zealand (Halloran, 2016).

British society in the mid-nineteenth century was concerned about infectious illnesses and provided fever hospitals in an attempt to prevent further spread within the community. The serious problem arose how a person suffering from a fever might be safely conveyed to hospital without infecting others en route? There being no ambulances, the cab was the only transport choice for infected people who could afford it, but other options were two-wheeled handcarts, horse-drawn carts or wagons (Davoudpour *et.al.* 2014).

During World War I, the British army was assisted by civilian volunteers organized by the Red Cross / St John's Ambulance collaboration as individual ambulance corps. Included among them was the First Aid Nursing Yeomanry (FANY), formed in 1907 as a female volunteer first-aid link to bring the wounded from the front line to field hospitals. Women also enhanced as ambulance drivers on the home front, and in 1915, they created and operated an ambulance unit in London, the Women's Reserve Ambulance (Angeline, 2013).

II. AMBULANCE SERVICE IN TAMIL NADU

At present, there are 827 ambulances are available for the entire population of Tamil Nadu viz seven crores. This workout the ratio of 1: 85000 and also every ambulance available with the vicinity of 25kms. It has been estimated every four minutes, one people dies on the road involving accidents while seven to ten percent are critically injured, twenty to thirty per cent are seriously hurt. Of these, about thirty percent are disabled for life, either partially or totally ([www. timesofindia.indiatimes.com](http://www.timesofindia.indiatimes.com)).

India requires a better emergency medical service to meet the growing number of emergencies. 'The Golden Hour' and the 'Platinum Ten Minutes' stresses the importance of Emergency Medical Services (EMS) all over the world ([www. en.wikipedia.org.com](http://www.en.wikipedia.org.com)).

It is a well-accepted fact that a patient who receives basic care from trained professionals and is shifted to the nearest healthcare facility center within fifteen-twenty minutes of an emergency has a greater chance of survival. In spite of the development in the healthcare sector over the past decade, India is yet to create a single, comprehensive EMS that can be accessed throughout the country. There is no single system which can play a major role in managing EMS.

III. BUDGET VARIANCE

While looking into the functions of the 108 ambulance services in Tamil Nadu, it was noticed that there are variances between the budget allocation and the money spent. Budget variance refers to the difference between the original budget amounts allocated for 108 ambulance services and the amounts actually spent. Reasons for variances can be due to changes in sales, changes in material cost or changes in labor cost. That difference of the cost are lesser than the expected amount in such a case it is called savings. In case the expenses are more than expected it is called shortage or deficit. (Jain & Narang, 2014).

Budget variance is calculated by making use of factors like material and overhead. In ambulance services expenses are classified based on the material, and overhead factors. The factor of material includes fuel expenses, medical consumables and ambulance equipments. The factor of labour includes care personnel cost, call centre salary and ambulance personnel cost. Remaining overhead factor includes repairs and maintenance, insurance and administrative expenses.

IV. SIGNIFICANCE OF THE STUDY

A statistical survey in 2011 highlights that India needs a high-quality ambulance services nationwide. India has a lot of disaster prone land areas, almost 57 per cent of India's land mass is vulnerable to earthquakes, 68 per cent to drought, Eight per cent to cyclones, and 12 per cent to floods. At present days, global Emergency Medical System has advanced so much that it contributes widely to the overall function of health care systems. The World Health Organization regards EMS as an integral part of any effective and functional health care system, (Sasser S, *et.al.*, 2005).

It is the first point of contact for the majority of people to health care services during emergencies and life-threatening injuries and act as a gate-keeping step for accessing secondary and tertiary services. Emergency medical providers around the world have developed an extended role to deal with medical and trauma emergencies utilizing advanced clinical technology. The rapid development of medical technology has also reformed the international EMS systems with the introduction of multifunctional compact monitoring systems making the task of monitoring patients manageable in an uncontrolled environment of pre-hospital settings. (Roudsari,2007).

There is a huge requirements urgency for the emergency services throughout the country; it is necessary to extent the services to the needy in the golden hour, so there is a need to evaluate the cost and budget amount allocated to the service and its effectiveness. If the expenses are reduced more number of human lives can be saved. The present study analyses the variances budget between the amount that are allocated by the state and the actual amount spent towards ambulance service in the state.

V. STATEMENT OF THE PROBLEM

Emergency situation can arise due to natural calamities or unexpected events and accidents like road or health related illness. So all the people unexpectedly meet any kind of emergency situation that time they need 108 ambulance services for saving lives. Our state has been implementing ambulance services since 2009. Ambulance service is needed by those who are in dire situation but the question arises whether all the needed people are able to avail of ambulance service and facility at the right time and in right place? The allocated financial resources are enough for implementing ambulance services in an effective manner. If the resources are not enough what will be the results? Human lives are lost and losing trust of the authorities of citizens. It will not only have an impact on human lives but also has economic impact and overall productivity of the economy. Cost effectiveness in Ambulance services will create an impact on the citizen for trusting life saving services. The present study is an attempt to analyze the budget variances of 108 ambulance services specifically.

VI. OBJECTIVES

The overall objective of the study is to know the budget variance of 108 ambulance services in Tamil Nadu. The following are the more specific objectives.

1. To ascertain the material costs, and overhead costs incurred in the 108 ambulance services for the period 2013-14 to 2016-17; and
2. To analyses the variances of budgeted cost and actual expenses incurred in ambulance service.

VII. METHODOLOGY

The present study is a descriptive one by nature. It has used secondary data for analyzing and interpretation. The data has been collected for the years 2013-14 to 2016-17. The data were analyzed and interpreted by four quarters in each year, so the data were presented for each quarter. Other secondary data were collected through websites, journals, books, and government records. The researcher has classified the expenses for analysis namely materials, and overheads.

Analyses and Interpretations
Table No: 01
Budget Variances for the Year 2013-14

		April – June			July – September			October – December			January – March			Net Variance
		Planned	Achieved	Variation	Planned	Achieved	Variation	Planned	Achieved	Variation	Planned	Achieved	Variation	
Material Cost	Fuel	455.4	527.47	-72.07	555.3	580.26	-24.96	586.46	622.2	-35.74	642	538.85	103.1	-29.62
	Medical consumable	52.53	38.81	13.72	62.91	96.53	-33.62	63.51	69.55	-6.04	107.1	50.07	57.03	31.09
	Equipments	8.52	8.59	-0.07	9.9	15.83	-5.93	10.18	16.49	-6.31	9.3	14.69	-5.39	-17.7
Overheads Cost	Repairs and maintenances	70.89	66.84	4.05	70.89	177.09	-106.2	115.47	179.26	-63.79	120.39	145.9	-25.51	-191.45
	Insurance	7.26	18.12	-10.86	12.14	11.27	0.87	7.15	3.15	4	7.71	9	-1.29	-7.28
	Administrative exp.	94.43	52.39	42.04	90.96	110.26	-19.3	90.06	97.86	-7.8	73.65	99.35	-25.7	-10.76

Source: www.nhrm.tn.com

The table presented above explains that budget variances for the year 2013-14. It has analyzed major budget variance of expenses namely fuel, medical consumables, equipments, repairs and maintenances, insurance and administrative expenses. It is noted that ₹ 29.62 lakhs shortage (deficit) from the budgeted cost for the fuel expenses in material cost. It is ascertained ₹ 191.45 lakhs shortage from budgeted amount in overhead cost.

Table No: 02
Budget Variances for the Year 2014-15

		April – June			July – September			October – December			January – March			Net Variance
		Planned	Achieved	Variation	Planned	Achieved	Variation	Planned	Achieved	Variation	Planned	Achieved	Variation	
Material Cost	Fuel	642.3	635.01	7.29	691.32	788.03	-96.71	673.64	696.56	-22.92	739.05	539.51	199.54	87.2
	Medical consumable	56.85	42.22	14.63	74.37	68.6	5.77	76.98	41.44	35.54	78.66	63.31	15.35	71.29
	Equipments	11.13	13.51	-2.38	13.13	16.2	-3.07	11.13	15.51	-4.38	12	17.72	-5.72	-15.55
Overheads Cost	Repairs and maintenances	129.42	153.19	-23.77	131.43	203.03	-71.6	123.56	125.03	-1.47	121.26	97.54	23.72	-73.12
	Insurance	27.3	32.72	-5.42	15.81	15.26	0.55	15.6	18.18	-2.58	9.81	4.95	4.86	-2.59
	Administrative exp.	106.53	114.15	-7.62	89.31	100.38	-11.07	91.91	131.75	-39.84	80.85	99.02	-18.17	-76.7

Source: www.nhrm.tn.com

The table on Budget Variance in the Year 2014-15 explains that ₹87.2 lakhs excess (surplus) from the budgeted cost for the fuel expenses in material cost. It is ascertained ₹ 76.7 lakhs of amount shortage (deficit) from budgeted amount in overhead cost.

Table No: 03
Budget Variances for the Year 2015-16

		April – June			July – September			October – December			January – March			Net Variance
		₹ Planned	₹ Achieved	Variation	₹ Planned	₹ Achieved	Variation	₹ Planned	₹ Achieved	Variation	₹ Planned	₹ Achieved	Variation	
Material Cost	Fuel	605.55	620.06	-14.51	631.17	587.96	43.21	625.17	612.46	12.71	909.02	901.54	7.48	48.89
	Medical consumable	81.43	59.52	21.91	82.83	75.83	7	82.83	75.07	7.76	110.44	77.41	33.03	69.7
	Equipments	20.99	15.71	5.28	21.9	15.33	6.57	21.9	12.67	9.23	31.05	12.73	18.32	39.4
Overheads Cost	Repairs and maintenances	142.62	97.99	44.63	153.75	128.43	25.32	153.75	162.68	-8.93	204.99	268	-63.01	-1.99
	Insurance	19.02	24.93	-5.91	10.59	11.25	-0.66	10.59	10.15	0.44	17.16	16.64	0.52	-5.61
	Administrative exp.	119.04	129.65	-10.61	104.22	72.33	31.89	108.66	113.1	-4.44	74.27	94.69	-20.42	-3.58

Source: www.nhrm.tn.com

The table on Budget Variance for the Year 2015-16 deals and explains the budget variances for the year 2015-16. It is observed that ₹.69.7 lakhs excess (Surplus) from the budgeted cost for the expenses of medical consumable in material cost. It is ascertained ₹ 5.61 lakhs shortage from budgeted amount in overhead cost.

Table No: 04
Budget Variance in the Year 2016-17

		April – June			July – September			October – December			January – March			Net Variance
		₹ Planned	₹ Achieved	Variation	₹ Planned	₹ Achieved	Variation	₹ Planned	₹ Achieved	Variation	₹ Planned	₹ Achieved	Variation	
Material Cost	Fuel	601.2	677.79	-76.59	790.5	711.07	79.43	737.28	754.6	-17.32	765.66	742.63	23.03	8.55
	Medical consumable	94.53	75.11	19.42	94.53	71.62	22.91	94.53	72.08	22.45	94.53	71.64	22.89	87.67
	Equipments	22.74	15.11	7.63	22.74	13.26	9.48	23.28	15.47	7.81	23.28	26.61	-3.33	21.59
Overheads Cost	Repairs and maintenances	135.81	147.17	-11.36	135.81	194.68	-58.87	135.81	143.32	-7.51	135.81	213.96	-78.15	-155.89
	Insurance	26.88	34.34	-7.46	19.02	15.32	3.7	14.91	12.12	2.79	10.26	12.06	-1.8	-2.77
	Administrative exp.	131.28	96.63	34.65	131.28	116.73	14.55	131.28	151.32	-20.04	121.38	92.44	28.94	58.1

Source: www.nhrm.tn.com

The table explains that budget variances for the year 2016-17. It is found that ₹.87.67 lakhs Surplus from the budgeted cost for the medical consumable expenses in material cost. It is ascertained ₹ 155.89 lakhs of amount shortage from budgeted amount in repairs and maintenance in the overhead cost.

VIII. FINDINGS

In respect of fuel cost ₹ 29.62 lakhs shortage from the budgeted cost for the fuel expenses in material cost, and it is ascertained ₹ 191.45 lakhs shortage from budgeted amount to repairs and maintenance in overhead cost for the year 2013-14. Variance in the year 2014-15 for ₹87.2 lakhs excess amount from the budgeted cost for the fuel expenses in material cost, and ₹ 76.7 lakhs of amount shortage from budgeted amount to administrative expenses in overhead cost for the year 2014-15. In respect of medical consumable cost ₹.69.7 lakhs savings from the budgeted cost for the expenses of medical consumable in material cost and ₹ 5.61 lakhs shortage from budgeted amount to Insurance in overhead cost for the year 2015-16. ₹.87.67 lakhs excess from the budgeted cost for the medical consumable expenses in material cost and ₹ 155.89 lakhs of amount shortage from budgeted amount in repairs and maintenance in the overhead cost for the year 2016-17.

IX. SUGGESTIONS

It is found that the variance is budgeted amount on fuel and medical consumables are too large, so the authorities of the ambulances services need to take necessary steps for realistic budget on fuel cost and medical consumable cost. In the expenses of repairs and maintenance budgeted volume amount is more shortage (deficit) during the study period, so government officials of the ambulance services need to take cautious steps to adopt suitable method for budgeting repairs and maintenance expenses.

X. CONCLUSION

There are immense requirements for the emergency services throughout the country for ambulance services that extent the services to the needy in the “golden hour”, so it is necessary to evaluate the cost and budget allocation to the service and its effectiveness. The present study discussed the effectiveness of budgeting and performance of ambulance services. It also observed that shortage from budgeted amount to repairs and maintenance in overhead cost for the period of study. The citizen of the country is very much proud for the services rendered by the state, towards welfare of the people through 108 ambulance services. So mercy is twice blessed.

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