

Research Paper

## Contribution of the Work of Ambulance Personnel in Society and the Role of National Ambulance Services in India: A Narrative Analysis

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### ABSTRACT

**Background:** The emergency medical technicians also known as ambulance personnel who provide instant assistance with medical emergencies, are typically the first responder, who reaches first at the site where the patient needs initial care and managing the time between the incident and reaching up to the hospital for medical care. The consequential role of emergency medical technician is to increase the chances of survival of the patient. Ambulance services in India play a significant contribution to provide pre-hospital medical care to the patient to retrieve life. The major responsibility of ambulance crew is administering emergency healthcare services on life saving timings. The present study will expose the contribution of emergency medical technicians in the society and role of national ambulance services in India. **Methods:** In this paper the narrative research was conducted with secondary data from health care professionals. **Results:** The ambulance services are increased by 57.5% from 2012 to 2022. On updating the National Ambulance Services records on website of Ministry of Health & Family Welfare under the department of Health & Family Welfare (Government of India), the particular data on exact number of ambulance services under the scheme as of June 2024 is 15,283 Basic Life Support Units, 3,918 Patient Transport Vehicles and 3,044 Advanced Life Support vehicles. **Conclusion:** The accessibility of the ambulance personnel services in society is improved from earlier services as they are readily available and present at the location in precise time duration and provides medical assistance instantly to rescue the life of human beings. The existing ambulance services in country were found to have met the norms and standards however there is a need of deployment of well equipped and maintained BLS, ALS ambulance services according to the population and health concern measures in the society. As per standards, appropriate and well trained, experienced EMT's (Emergency Medical Technicians) are required.

**Keywords:** *Emergency, Emergency medical technician, Health system, National ambulance services*

### **Emergency Medical Technicians**

Ambulance personnel are the experts in their particular field such as EMTs (Emergency Medical Technicians), Paramedical staff and other health care professionals to deliver prehospital medical services and care and also provide transport facility to patients for

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reaching to the hospital at life saving timing. The job responsibilities are with the collaboration between the emergency medical technician and the ambulance driver etc. The role of ambulance personnel is to provide ambulance services at a life saving timing of the patient.

### **Role of emergency medical technician-**

1. Paramedics- They provide medications and advance medical life support approaches.
2. Ambulance Drivers- The personnel who drive the ambulance and operate different ambulance operations and also provide the transport facility to the patients.
3. EMTs (Emergency Medical Technician) - They assist basic life support to the patient including CPR, providing first aid and other support to stabilize the condition.
4. First Responders- The person reaches first at the site of incident and delivers all possible medical care as soon as possible.

### **Training and Qualification-**

The qualification and training required for specialization in the roles and duties of ambulance personnel is class 10<sup>th</sup>-12<sup>th</sup> passed for ambulance driver, the diploma, graduation and post graduation in biological sciences with specialized and approved different EMT and paramedical training programmes etc. for the emergency medical technicians, paramedical staff and healthcare professionals.

### **Emergency Medical Services-**

Emergency Medical Services are also known as EMS is the division under the medical healthcare emergency services which aims to provide pre-hospital medical care in the presence of specialized paramedical staff and emergency medical technicians.

### **EMRI Ambulance Services-**

The service is basically divided into three sections. First is BLS which is basic life support, ALS (Advance Life Support) with the presence of cardiac monitor and defibrillator in the already introduced BLS ambulance services. The ambulance services have basically 3 pilots also called ambulance personnel with a driver and 2 EMT's (Emergency Medical Technician) staff. They have a 12 hours duty with a fourth day break. The finance of the services is managed by NRHM. Before 2009-10 the government had provided up to 100% capital expenditure from 2009 to year onwards. In the first year government had provided 40% expenditure, 60% in the second year, 80% in third year and 100% thereafter. The total operating cost is around Rs. 15 to 17 lakhs per year for each ambulance.

### **National Ambulance Services in India-**

According to the reports of National Health Systems Resources Centre (Technical Support Agency under the National Rural Health Mission) Ministry of Health & Family Welfare, Government of India, the main objective of the emergency medical services is to facilitate the essential care and treatment of the patient at his/her best survival rate.

### **Emergency Medical Services-**

The term emergency medical services have been introduced to mirror from a normal transportation as an ambulance service to the highly recommended EMS for the best possible output in medical healthcare field. The concept of EMS is latest and has emerged in India in December 2009 in which an excess of 2,600 is supervised under EMRI which is covering 10 states in India. Apart from these states some other states such as Delhi,

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Himachal Pradesh, Bihar and Kerala have moved on with the EMRI-like model which is collaborated with other EMS operating agencies. Moreover, some states like Madhya Pradesh and West Bengal have a relationship with basic ambulance services with lack of high technologies surroundings. These transportation services have tied up with different agencies such as NGO's on contract basis at district/block levels. In the year 2010-11, the amount sanctioned for 11 states under NRHM was approximately Rs. 227.10 crores to Emergency Referral Transportation System.

### **METHODOLOGY**

#### ***Narrative Analysis***

Under this present study on the contribution of the work of ambulance personnel in society and role of national ambulance services in India, the researcher has studied different researches on ambulance personnel and National Ambulance Services in India. In the analysis, the secondary data from government reports on the portals such as the state programmed implementation plans and available NHM quarterly progress report from the year 2012 to 2022 were reviewed for the contribution of national ambulance services in India. Moreover, the National Ambulance Services records on website of Ministry of Health & Family Welfare under the department of Health & Family Welfare (Government of India), the particular data on exact number of ambulance services under the scheme as of June 2024 is 15,283 Basic Life Support Units, 3,918 Patient Transport Vehicles and 3,044 Advanced Life Support vehicles were reported. The National Ambulance Services were launched by Ministry of Health and Family Welfare, Government of India. (NAS) is currently operational in 36 States and the Union Territories in the country. The different types of ambulances such as Basic Life Support (BLS), Advanced Life Support are supported by National Health Mission (NHM) by providing operational costs and capital expenditures. Now days very advanced ambulances like bike and boat ambulances are readily available on difficult access areas to ensure the availability of the healthcare facilities to all.

### **RESULTS**

#### ***Models of EMS in India***

The major models of EMS which have been existed as the transport facility among various states in India are-

**1. EMRI “108” Model (Comprehensive EMS Model)** - The emergency response model is extensively used in India which is supervised by EMRI (Emergency Management and Research Institute) among 10 states. The first operation was initiated in Arunachal Pradesh on 2 April, 2005 with the addition of 30 ambulances in the 50 towns of the specific state. The key role of this model is to support curing the patient with police, medical facilities and fire emergencies with 108 emergency services. The calculation of the past ambulance services was approximately 2,601 which were going on in the 10 states such as Arunachal Pradesh (752) ambulance services were running with the highest number of counts in India. The second highest was the Karnataka (408) ambulance services, Gujarat was the third highest ambulance services with (403) number of counts, Tamil Nadu was recorded with (385) ambulances in the state, Assam had (280) number of counts, Rajasthan (164), Uttarakhand (108) and Madhya Pradesh with (55) ambulances, Meghalaya with (28) ambulances recorded, Goa with the least count with (18) ambulances services. The 108 model of EMS has owned the public private partnership in-between state government and (EMRI). The goal of this particular service is to reach at the site within 20 minutes in cities and around 40 minutes in rural areas. Moreover, the main target is to save the patient's life

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and get him/her admitted within 20 minutes by reaching at the site. The service is open for 7 days 24 hours in a week.

**2. Janani Express Scheme (Non-EMS, Transportation Model)-** The Janani express scheme was launched on August 15, 2006 under the department of Health and Family Welfare, Government of Madhya Pradesh. Due to the great tribal area and the large state, the National Rural Health Mission took the in charge to launch this scheme. It is a public private partnership model in which the contract is signed between government and the private agencies. It provides the facility of four-wheeler like (jeep/ Tata sumo/Mahindra) to support pregnant women up to the hospital. It does not facilitate all the facilities like ambulance services.

**3. Bihar Model: 102 and 1911(Mix of EM and basic transportation model)-** It is a toll free number 102 which provide the healthcare professional to the patient on the conference call and also do visit if required. Later on the number is transferred from 102 to 1911. The state health society of Bihar took the responsibility to provide ambulances under NRHM. This services charge around Rs.75 to 200 per 10 km. people below BPL have exempted with this charge. This scheme is applicable for both government and private sector.

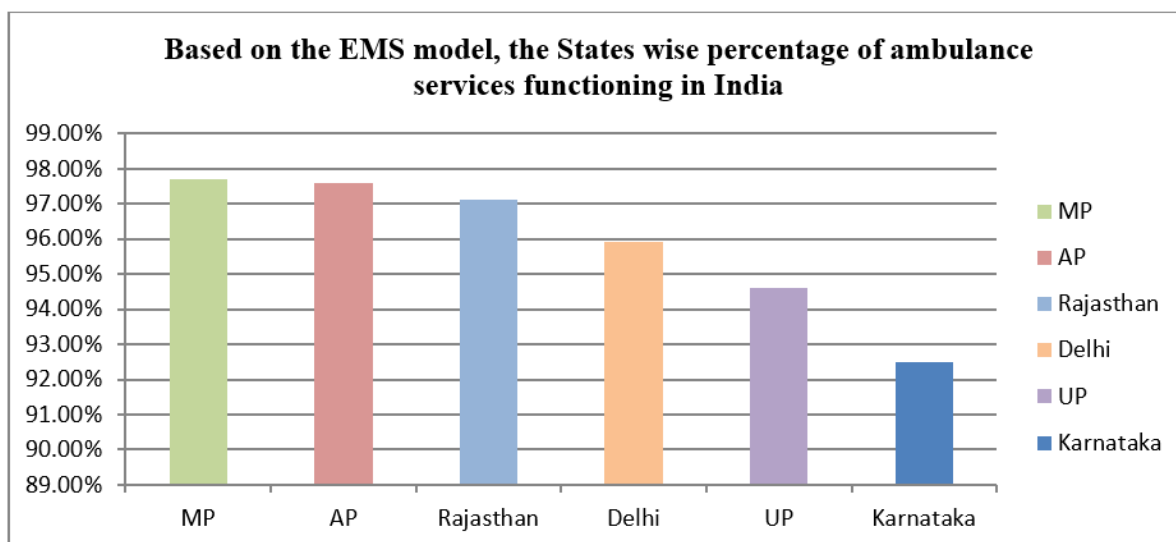
**4. West Bengal Ambulance PPP Model (non-EMS, Local transportation model)-** The ambulance services are handover by government to different NGO's having ownership with itself under the supervision of District Health Family Welfare Samiti (DHFWS) for the contract of 5 years. The responsibility of monitoring the services is given to the block health and family welfare Samitis (BHFWS).

**5. Referral Transport System in Haryana (specialized in trauma/highway services) -** Government took the initiative to reduce the death rate of neonatal and mother. For the purpose to control the death rate, the government of Haryana had launched a specialized service scheme as a referral transport service with the market name as "Haryana Swasthya Vahan Sewa no 102" on dated 14<sup>th</sup> November 2009. It has covered the 21 districts of Haryana. The basic facilities were a) picking up the patient from the site with transport to the medical facilities from primary place to higher medical care. The service is free for pregnant women, patients and victims of the incident or any miss-happening. Those who belong to BPL are exempted to charge but other people have to pay the minimal charges. The scheme was managed by the government with the agreement between the districts red cross societies and toll-free number i.e. "102". The location of the patient was traced by GIS/GPS.

It was understood by the people of the society that the ambulance services are not limited up to pregnant women, child and postmortem duration but should also be available for all citizens of the nation. To continue with this effort and motivation, the very first-time government of Arunachal Pradesh had launched 108 Ambulance services for all people of the society. Proceeding with this mindful approach the government had introduced two ambulance services i.e. 108(ALS/BLS), 102 ambulance service. Dialling toll free number 102/108 is an emergency response system. Both of the number is working to serve the mankind on behalf of medical care services. The total number of 5176 transportation facilities is running within the nation. These ambulance services had performed a marvellous role during pandemic of COVID under National Health Mission (NHM) to further treatment required to take care of the covid patients under quarantine and isolation.

**DISCUSSION**

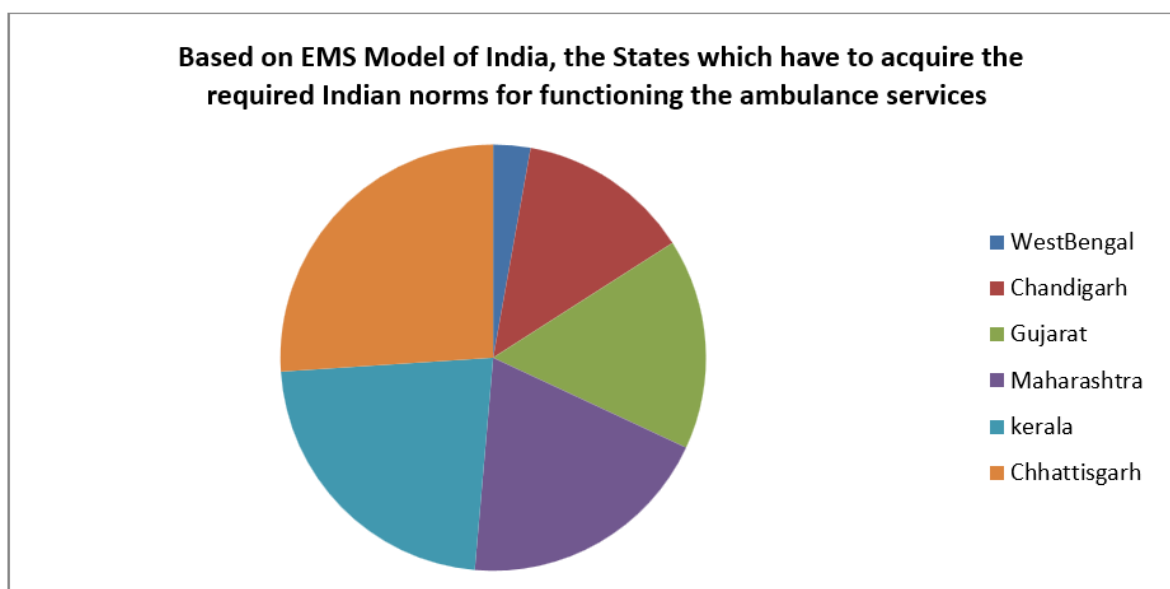
The ambulance services in different states of India were increased by 57.5% in 2022. The country has fulfilled the required BLS ambulance services by 25% which is more than the required amount for 1 BLS per 1 lakh population. There was a deficiency of ALS ambulances per 5 lakh population by 32%. Some states which have already fulfilled the criteria of functional ambulances on the basis of the Indian norms requirements are: Andhra Pradesh by (97.06%), Karnataka by (92.48%), Madhya Pradesh with (97.7%), Rajasthan with (97.12%), Telangana with (92.2%).



**Figure 1: The percentages of different states acquired proper functioning of ambulance services according to Indian norms**

Uttar Pradesh with (94.6%) and Delhi with (95.9%). The states which have to acquire the required Indian norms for functioning the ambulances are Chhattisgarh with (84.9%), Gujarat with (52.1%), Kerala with (73.6%), Maharashtra with (63.4%), Puducherry with (88.2%), Chandigarh with (42.8%), and West Bengal with (9.21%). The states which have acquired (0%) BLS ambulances are Punjab, Lakshadweep, and Manipur. The recorded data has shown the states, union territories who have achieved the 100% ALS ambulances against requirement are: Delhi, Goa, Gujarat, Haryana, Uttarakhand, Himachal Pradesh, Jammu & Kashmir and Meghalaya. States like Andaman & Nicobar, Arunachal Pradesh, Kerala, Manipur, Nagaland, Mizoram, Tripura and West Bengal do not have any adequate units of ALS ambulances as per the population. States which have to cover the population saturation of ALS as per the national norms are: Karnataka (98%), Maharashtra (94%), TamilNadu(80%), Rajasthan (77%), Jharkhand (65%), UP(53%) Chhattisgarh (50%), Madhya Pradesh (39%), Telangana (39%), Bihar (34%), Assam (20%).

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*Figure 2: The percentages of different states which have to acquire the required Indian norms for functioning the ambulance services*

### CONCLUSION

The inexpensiveness and the availability of the ambulances now days have subsequently improved and the layman of the nation has the right to avail all health care related facilities. According to the reports of Common Review Mission (CRM) people of the society are aware about the 108 and 102 ambulances. Some agencies which are incorporated with the government of different states are Talli Bidda in Andra Pradesh, Mamta Vahan in Jharkhand, Jaccha Baccha Vahan /Bike services in MP, Adarani/ Mrityunjoy in Assam are some of the agencies which have initiated the ambulance services.

The nation is still deprived with the services network. Although country has already achieved the target with the norms of WHO with 1:1 Lakh population and around 50,000 ambulance services are functional under National Health Mission (NHM) according to the research conducted in last 2022. In accordance with the updating on National Ambulance Services as of June 2024, reports the guidelines set by National Health Mission as population based norms for healthcare needs at the very first priority base is the ambulance services. It is bounded with one Advanced Life Support (ALS) for every 50,000 people. Another one is the Basic Life Support (BLS) ambulance service is recommended with 100,000 people of society. The data recorded to the NHM-MIS report with the due month of June 2024, the largest recorded ambulances are Basic Life Support (BLS) with 15,283 units succeeded by Patient Transport Vehicles (PTV) at 3918 which is followed with Advanced Life Support units is 3,044. Reaching at the location, picking up and saving the life of a patient, providing treatment for stabilization in patient's condition is the great challenge. The list provided by Ministry of Road Transport mandates on equipments required in ambulances is still not followed completely in some states. The equipments such as portable oxygen, emergency delivery kit, and electric portable suction aspirator are available but their usage in treatment and care is not overall followed. The main cause of the deployment in services is due to some states have more than required number of ambulances on the other hand some states have less number of services due to this inaccuracy there is an unorganised collaboration between the services of ambulance services. Proper protocol on hygiene and

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cleanliness should also be followed by EMT staff. The recent report published by NITI Aayog highlighted that the healthcare services have improved in the nation but there is some lack of proper care within the transportation. Some shortcomings are: Protocol for care and treatment should be strictly followed. The best practices to be followed by the management team for hiring the emergency medical technician is proper experienced, skilled and knowledgeable paramedical staff, and medical equipments should be latest and functional. The last but not least that proper monitoring of the location of the patient and ambulance should sincerely be traced by the managing team with high technological resources with new advanced networks.

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### ***Conflict of Interest***

The author(s) declared no conflict of interest.

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