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**Review Article**

# Patient Transport Services

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## 1. Abstract

An effective ambulance service serves as a life-saving link, bridging the gap between the incident location and the hospital. Safe transport of patients from one location to another is a fundamental part of emergency medical services. Patient transportation system encompasses not only Ambulances but also a wide range of mechanical systems including patient lifts, trolleys, stretchers and wheel-chairs available in the department of Accident and Emergency. The main objective of ambulance services is to transport the sick and injured as quickly and comfortably to hospital as possible where effective medical care can be rendered by qualified competent medical, nursing and paramedical staff. Ambulance is an out reaching limb of the hospital based emergency medical services and follows the principle of 'scoop and run' rather than 'stay and play'. An efficient, promptly responding, well-equipped ambulance service staffed with competent personnel is considered one of the essentials of well-organized emergency department. The way the ambulance was driven and the quality of the road had an impact on the patient's medical condition. An ideal ambulance provides a driver compartment and patient compartment, which can accommodate two emergency medical technicians and two lying patients.

## 2. Keywords

Ambulance, Ambulance services, Patient transport system, Patient lift, Trolley, Wheel chair, Stretcher.

## 3. Introduction

Ambulance services holds a key role in shaping the health and well-being of society. An effective ambulance service is not merely about transporting patients. It serves as a life-saving link, bridging the gap between the incident location and the hospital. A quick, efficient, and well-equipped ambulance service can make a significant difference in emergency situations, often marking the difference between life and death. Safe transport of patients from one location to another is a fundamental part of emergency medical services. The transportation system consists of two types viz. intramural (internal transport system) and extra mural (external transport system). Ambulance plays a major role in saving precious lives of not only trauma victims but also patients who develop medical or surgical emergencies in the form of myocardial infarction, cerebral hemorrhage, foreign body throat. Ensuring equipment availability, improving care processes, detailing adequate human resources, regulating monetary charges and taking care of patient and staff safety will definitely improve the quality and

effectiveness of ambulance services.

## 4. Discussion

Patient transportation system encompasses not only Ambulances but also a wide range of mechanical systems including patient lifts, trolleys, stretchers and wheel-chairs available in the department of Accident and Emergency. The physical movement of a patient from one place to another in the shortest time possible is an important aspect of the emergency medical care of patients in critical conditions [1]. The main objective of ambulance services is to transport the sick and injured as quickly and comfortably to hospital as possible where effective medical care can be rendered by qualified competent medical, nursing and paramedical staff.

**4.1 Utilization:** Ambulance is an out reaching limb of the hospital based emergency medical services and follows the principle of 'scoop and run' rather than 'stay and play'. An efficient, promptly responding, well-equipped ambulance service staffed with competent personnel is considered one of the essentials of well-organized emergency department. Ambulances are meant for transportation of patients and emergency care medical staff. Visitors and relatives should not travel in the ambulance and in exceptional cases a relative may be

permitted to accompany very critical patient to help the paramedical staff in caring for patients. No dead bodies should ever be carried by Ambulance. This has psychological effect on other patients. Ambulances are likely to get infected if dead body was having gas gangrene or any communicable and infectious disease. No stores should be carried by ambulances and during war time also only patients are to be evacuated and no arms or ammunition as per Geneva convention, Ambulances should not be used as load carrier vehicles.

**3.2 Cause and Effect:** The way the ambulance was driven and the quality of the road had an impact on the patient's medical condition. Vibrations, hard or sudden movements, braking, or acceleration may cause injuries or deteriorate the medical conditions [2]. Noise may not only directly affect the patient's condition but may also cause discomfort [3]. Careless driving or a road with many turns could cause motion sickness and/or nausea that also increases the risk of aspiration [4]. Lights and sirens have also been found to increase stress among patients transported in an ambulance [5].

**3.3 Ideal Patient Transport System:** An ideal ambulance provides a driver compartment and patient compartment, which can accommodate two emergency medical technicians and two lying patients, so positioned, that at least one patient can be given intensive life support during transit, which carries equipment and supplied for optimum emergency care at the scene as well as during transport, for two way radio communication, for safeguarding personnel and patients under hazardous conditions and for light rescue procedures and which is designed to afford maximum safety and comfort and to avoid aggravation of the patient's conditions, exposure to complication and threat to survival.

**3.4 National Ambulance Service:** Under the National health mission, National ambulance service has been activated in 35 states / Union territories in India under dial 102 / 108 ambulance services. Dial 108 is predominantly an emergency response system and caters for patients of critical care, trauma and accident victims whereas dial 102 services essentially consist of basic patient transport aimed to cater the needs of pregnant women and children.

## 5. Challenges being Faced

**5.1 Disintegration:** Not a single public or private player has a pan India presence in offering Ambulance services which leads to inconsistencies in service quality and time inefficiencies.

**5.2 Availability:** In remote and rural areas, a significant population faces severe accessibility issues due to the lack of available ambulance services.

**5.3 Uniformity:** Lack of standardized equipment, drugs, medical and surgical consumables, trained medical and paramedical staff significantly reduces the chances of successful patient stabilization and transfer.

**5.4 Clientele Satisfaction and Patient Outcome:** The consequences of delayed response times for ambulances often mean that a large number of patients don't receive timely medical attention they need leading to loss of lives which could have been saved with faster intervention.

**5.5 Golden hour concept:** The "golden hour," which is the critical period immediately after a traumatic injury, is when prompt medical intervention can significantly improve a patient's chances of survival. Delayed response due to inadequate resources, densely populated cities and notorious traffic congestion can stretch the waiting time far beyond the golden hour.

**5.6 Ambulance Providing Organizations:** Government Hospitals, Private Companies, Charitable Organizations, Religious Institutions and Political parties provide ambulance services in India. Some states in India use empanelled vehicles for transporting pregnant women and children, such as Janani Express in Madhya Pradesh and Odisha, Mamta Vahan in Jharkhand, and Nishchay Yan Prakalpa in West Bengal [6]. National Highway Authority of India has deployed approximately 550 ambulances on national highways [7].

**5.7 RED.Health:** RED.Health is a private player which has tried to improve ambulance services in India by rapid expansion to over 550 cities, with a fleet of about 5000 ambulances and collaborations with over 200 leading hospitals and partnerships with local governments, NGOs and social enterprises, embracing technological innovations, from AI and data analytics to advanced medical equipment and digital platforms.

## 6. Conclusion

To address the existing gaps in ambulance services, we must establish comprehensive evaluation parameters that cover equipment availability, care processes, human resources, monetary charges and patient and staff safety. These parameters will serve as benchmarks for assessing the quality and effectiveness of ambulance services. Stringent educational and awareness capsule courses for ambulance staff, including paramedics and emergency medical technicians are crucial. Well-formulated communication protocols between ambulance staff, hospitals, and emergency services improves response times and patient outcomes. Prioritizing safety within ambulances for patients and staff and ergonomic designs would definitely help improve patient outcomes and job satisfaction in the paramedical staff.

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