Impact of The Pre-Hospital care and Mode of Transport on Clinical Outcome of Acutely Injured Patient Coming to Emergency at a Tertiary Care Hospital in Jodhpur

Thesis

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All India Institute of Medical Sciences, Jodhpur

In partial fulfilment of the requirement for the degree of

Doctor of Medicine (MD)

(EMERGENCY MEDICINE)

JULY, 2020 **Dr. BHARTI GINDLANI**

AIIMS, JODHPUR

Department of Emergency Medicine

ALL INDIA INSTITUTE OF MEDICAL SCIENCES, JODHPUR

CERTIFICATE

This is to certify that the thesis titled "**IMPACT OF THE PRE HOSPITAL CARE AND MODE OF TRANSPORT ON CLINICAL OUTCOME OF ACUTELY INJURED PATIENT COMING TO EMERGENCY AT A TERTIARY CARE HOSPITAL IN JODHPUR** " is the bonafide work of Dr Bharti Gindlani, carried out under our guidance and supervision, in the Department of Emergency Medicine, All India Institute of Medical Sciences, Jodhpur.

Dr Bharat Choudhary

Associate Professor

Department of Trauma and Emergency (Pediatrics)

AIIMS, Jodhpur

Department of Emergency Medicine

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Supervisor:

Dr. Bharat Choudhary

Associate Professor

Department of Trauma and Emergency (Pediatrics)

AIIMS, Jodhpur

Co-Supervisor:

Dr. Mahendra Kumar Garg

Professor and Head

Department of General Medicine,

AIIMS, Jodhpur

Dr. Mahaveer Singh Rodha

Additional Professor

Department of Trauma & Emergency,

(General Surgery)

AIIMS, Jodhpur

Dr. Manoj Kumar Gupta

Additional Professor

Department of Community Medicine

& Family Medicine,

AIIMS, Jodhpur

Dr. Ankur Sharma

Associate Professor

Department of Trauma & Emergency

(Anaesthesia and Critical Care),

AIIMS, Jodhpur

DECLARATION

I hereby declared that the thesis titled **"Impact of the pre-hospital care and mode of transport on clinical outcome of acutely injured patient coming to emergency at a tertiary care hospital in Jodhpur"** embodies the original work carried out by the undersigned in All India Institute of Medical Sciences, Jodhpur.

Dr. Bharti Gindlani

Department of Emergency Medicine

All India Institute of Medical Sciences

Jodhpur

ACKNOWLEDGEMENT

Nothing worth achieving has ever been achieved without the guidance of our teachers and the support of family and friends. The immortal words of Helen Keller could not be more undeniable as I stand at the cusp of one of the most prestigious achievements of my life.

I would not be at this landmark moment without the trust and patient patronage of **Dr Bharat Choudhary**, my MD thesis Guide and Associate Professor, Department of Trauma and Emergency (Pediatrics), All India institute of Medical Sciences, Jodhpur. I am truly honoured and grateful for the opportunity to learn under his tutelage. His professional enthusiasm and zeal have made this study to come true. I am also indebted to my Co-guide **Dr Mahendra Kumar Garg,** Professor and Head, Department of General Medicine. Their step-by-step support and guidance have been instrumental in creating the environment of success and excellence needed for a dissertation from our esteemed institute.

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Dr. BHARTI GINDLANI

Dedicated

To My Parents,

Teachers, Friends

And Almighty

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LIST OF ABBREVIATIONS

ACLS	Advanced Cardiac Life Support
BLS	Basic Life Support
CATS	Centralized Accident and Trauma Services
CMC	Christian Medical College
CCT	Chest Compression Test
CHC	Community Health Centre
ETAT	Emergency Triage Assessment and Treatment
EMS	Emergency medical services
eFAST	Extended Focused Assessment Sonography For Trauma
GCS	Glasgow Coma Scale
HR	Heart rate
LMICS	Low- and Middle-Income Countries
LAMA	Leave Against Medical Advice
PCT	Pelvic Compression Test
PHIs	Pre- Hospital interventions
PHC	Primary Health Centre
PICU	Pediatric Intensive Care Unit
SMF	Sundaram Medical Foundation
SRMC	Sri Ramachandra Medical College and Research Institute
SBP	Systolic Blood Pressure
TXA	Tranexamic Acid
WHO	World Health Organization

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INTRODUCTION

INTRODUCTION

Emergency transport service is the weakest link in the care of acutely sick patients. EMS is system of care developed out of the need to improve the outcome of ill and injured patient. EMS provide health care using wide variety of model, but the quality of care they provide is questionable. Emergency medical system in India is old concept, but it has not been fully adopted by Indian health system yet. Studies have shown good prehospital and emergency services decrease the morbidity and mortality of patient.

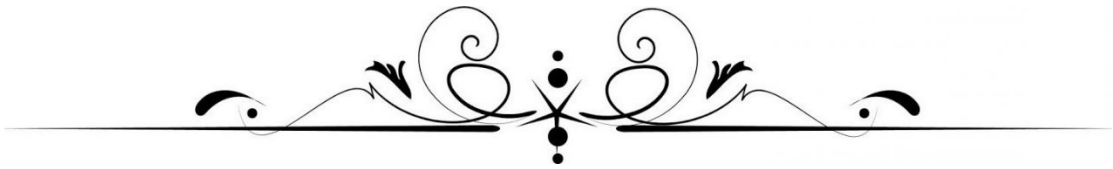
Emergency medical services provide treatment to those in need of urgent medical care, with the goal of satisfactorily treating the malady and arrange for timely transfer of patient to the next point of definitive care.

Various studies have found the following gaps in the existing EMS services in India like hospital infrastructure, for treating and managing medical emergencies at the spot and during transport, lack of training infrastructure for training health staff, fleet of existing government owned ambulances, legal framework defining and regulating roles and liabilities of various stakeholders.

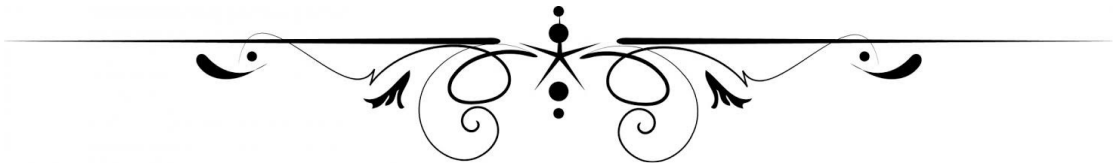
In the current era we have different model of ambulance service in various states like EMRI108 model, Janani express scheme, Bihar model (102 and 1911), referral transport system in Haryana but uniform structure is still lacking.(1)

Emergency care system in our country has seen uneven progress. Some states have done well, while others are still in the budding stages. Overall, it suffers from fragmentation of services from pre-hospital care to facility-based care in government as well as in the private sector. The system also suffers from lack of trained human resource, finances, legislation and regulations governing the system. Absence of standalone academic department since its inception is another factor for the current ails in the system.

Efforts to improve emergency care, however, need not lead to increased costs for many people around the world, emergency care is the primary point of access to the health system, and is thus, essential to universal health coverage.



REVIEW OF LITERATURE



REVIEW OF LITERATURE

The concept of hospital can be traced in the ancient Mesopotamia beginning at theend of the 2nd millennium to the end of the Middle Ages. Institutionalized health care facilities are thought to exist in India as early as the 5th century BC, and with the spread of Buddhism to the east,to nursing facilities, in Sri Lanka, China and South East Asia. In Greece, the birthplace of rationalmedicine in the 4th century BC the hospitals as a institution did not exist and the Hippocratic doctorspaid house-calls. In Roman times the military and slave hospitals which existed since the 1st centuryAD, were built for a specialized group and not for the public, and were therefore also not precursors of the modern hospital. Under Christians, hospitals were initially built to shelter pilgrims and messengers between various bishops, which developed into hospitals in the modern sense of the word. In Rome itself, the first hospital was built in the 4th century AD by a wealthy penitent widow, Fabiola. In the early Middle Ages (6th to 10th century), under the influence of the Benedictine Order, an infirmary got established as part of every monastery. During the late Middle Ages (beyond the 10th century) monastic infirmaries continued to expand along with it public hospitals were also opened, financed by city authorities, the church and private sources. Specialized institutions, like leper houses, also originated at this time. (1)

The evolution of emergency medical services (EMS) system has been a slow and steady process. The roots of the development of the modern EMS are traced to the Napoleon's time to aid injured soldiers, Jean Dominique Larrey Napoleon's chief physician is credited with the development of the modern EMS and organized a system to treat and transport injured French soldiers (2)

During the Civil War, an organized system was developed by the union army to evacuate soldiers from the field. Lessons learned during the Civil War were applied as civilian EMS systems which developed during the late 1800s. By 1960 there was a patchwork of unregulated systems with services sometimes being provided by hospitals, fire departments, volunteer groups, or undertakers. Physicians staffed some ambulances, while majority had minimally trained or untrained personnel (3)

EMS was initially considered a transportation service, with medical advances of the 1960s, combined with innovative EMS programs to deploy advanced medical technologies throughout the community,EMS system could provide medical services. Additionally, the with the return of military-trained medics from Vietnam in US, with both prehospital training

and experience, provided a cadre of individuals able to apply the skills they had mastered to civilian EMS systems (3).

In the 1960s the concepts of cardiopulmonary resuscitation, defibrillation, cardioversion, and new pharmaceutical therapies was demonstrated and the American Heart Association and the

American Red Cross adopted these techniques and began to train health care providers, although EMS providers were initially not the part of the training. Advances also occurred in trauma care, including the development of specialty trauma centers. Techniques that had proved to reduce the mortality of injured soldiers reaching medical facilities were applied to civilian trauma patients.

As a result,traumatic deaths were treated as an abnormality rather than an inevitable event. R. Adams Cowley, a leader in trauma and critical care, estimated that a quality emergency health system could cut the accident death rate by 50% (4)

The first attempt toward establishing EMS in India wasn not a countrywide movement, but started as a city-based effort in 1985 in Mumbai where 15 ambulances were connected to a central wireless dispatch center by the Association for Trauma Care of India.

Prior to 1985, like in the U.S., ambulance services in India were driven either by municipalities, hospitals or charities; even today, though EMS is well-rooted, there's still a heavy dependence across the country on such services. The initial steps were taken in the mid-1980s in Mumbai, the financial capital of India and the same time, similar but government driven steps were taken in Delhi, the nation's capital. Work had started on the first state funded EMS in the Indian sub-continent, which in 1991 was launched as the Centralized Accident & Trauma Services (CATS) with 13 ambulances. CATS continue to be the backbone of National Capital Territory EMS with 151 ambulances stationed across the region attending to more than 150,000 calls a year.(2)

In 1994, the Christian Medical College (CMC) in Vellore established the first ED in the country with a formal accident and emergency department. The same year, the Sundaram Medical Foundation (SMF) established the first ED in the private sector.

Sri Ramachandra Medical College and Research Institute (SRMC), started ED-monitored ambulance retrievals. SMF started nursing triage systems, followed soon by CMC, which also initiated protocol-based multi-specialty synchronous involvement replacing sequential consultation in poly-trauma management. The subsequent year, CMC conducted the first

formal training program in poly-trauma in India, the Early Management of Trauma Course. (6)

Pre-hospital care is currently being provided by the state government regulated ambulances in many states by Emergency Management and Research Institute with a common toll-free number 108 though the command centre is although not situated or run by the government or the Emergency Departments. 108 does not pre-notifies Emergency Departments and is thus a rudimentary form of pre-hospital EMS that exists in India and needs to be modernized and integrated with the hospitals at state and national level.

With more than 150,000 road traffic related deaths, 98.5% 'ambulance runs' transport dead bodies, 90% of ambulances are without equipment/oxygen, 95% of ambulances have untrained personnel and most ED doctors having no formal training in EMS, misuse of government ambulances and 30% mortality due to delay in emergency care, India portrays a mirror image of the U.S. of the 1960.

India has two different but overlapping publicly funded ambulance systems, with both popularly known by their helpline numbers, 108 and 102. They have more than 17,000 ambulances across the union of 31 states and union territories(3)

In India and many low- and middle-income countries (LMICs), ambulance-based emergency medical systems (EMS) are uncommon and over half of the global population lives in areas without formal EMS. Traffic crash victims in LMICs are typically transported to hospitals by bystanders and passing vehicles. In India, studies suggest most victims are shifted to hospital by taxis or police, with ambulances accounting for less than 5% of transport, a pattern that has changed little in 30 years. Despite strong advocacy, the high equipment and operational costs of ambulance-based EMS infer it will be difficult to be adopted or expanded to scale in many LMICs.(4)

In principle, EMS improves trauma outcomes by providing: (1) medical interventions in the prehospital setup, and (2) quick transport to a definitive care facility. However, evidence suggests that many prehospital interventions are ineffective and that the main benefits of EMS likely due to transfer to the hospital facilities. Interestingly, studies have questioned the benefits of emergency endotracheal intubation, intravenous drug therapy, fluid resuscitation and spine immobilization. In fact, studies suggest that trauma victims transported by advanced life support ambulances have similar or worse outcomes than basic life support, likely due to interventions that are poorly performed and even not performed which

ultimately delays transfer to definitive care. Recognizing the weak evidence for advanced training of first responders, the WHO now recommends training lay responders in LMIC, such as commercial drivers, to provide basic first aid and rapid transfer to hospital (8)

The second key aspect of EMS — which includes coordination of lay responders to reduce transfer time — receives very little attention in advocacy efforts. The recent developments in smartphone technology have made coordinated taxi fleets common in LMICs. There have been several unsuccessful attempts to develop the idea of 'layperson-EMS' by using peer-to-peer or dispatcher-coordinated networks of lay responders. In recent years, ridesharing companies in India (Uber in Hyderabad and Wagon Cab in Delhi) have also launched emergency ride options. There have been attempts to build dispatcher coordinated networks of existing private ambulances (AMBER Health and Life Hover in Delhi, Dial242 in Mumbai, StanPlus, eSahai and Call Ambulance in Hyderabad). The layperson-EMS may face legal, medical and social barriers that need to be systematically addressed (5)

Air medical transport has been existing in our country for quite some time predominantly in the private hospitals and few of the government hospitals in the country however the number of patients availing this facility is albeit very low.(6)

International standards recommend 1 ambulance for every 50,000 people for transporting patients to definitive care facilities in Low- and Middle-Income Countries (LMICs). Low- and middle-income countries (LMICs) share 90% of the global road traffic crash (RTC) fatalities (WHO 2015). The road traffic fatality rate per 100000 population in India (18.9) is much higher than the high (8.7) income countries(7)

Injuries are 6th in the list of common causes of death and lead to 11.3% of all deaths in SEAR (South East Asian region). Road injuries are the commonest cause of death in SEAR expected to increase from 24.7%to 28.9% from 2015 to 2030 with 90% of deaths occurring in LMICs which only account for 54% of the world's vehicles, these deaths and injuries are unevenly distributed.

Amongst people 15 to 29 years of age, road traffic injuries lead to maximum deaths and cost governments approximately 5% of GDP in LMICs. Other notable areas of injuries include falls (18.5%) and self-harm (19.4%) leading to deaths in SEAR.

In India almost 23% of all trauma is secondary to RTA, with 13,74 accidents and 400 deaths every day on roads.(10) The rest of the 77.2% of trauma is due to events such as falls,

drowning, agriculture related, burns, etc.(11) According to World Health Organization, India has the highest snakebite mortality in the world estimated at 30,000 every year.(8) Pedestrians and bicyclists account for 70% of the road deaths, while 25% occur among motorized two wheeler riders. A large percentage of injuries go unreported due to lack of a systematic injury information system. Good quality information on mortality and morbidity, road design, and enforcement practices is essential for addressing the problem and for effective intervention strategies(9). These costs include both loss of income and the burden placed on families to care for their injured relatives.

WHO EMERGENCY CARE SYSTEM

The WHO info graphics below (Figure 1,2,3) are visual representations of the WHO Emergency Care System Framework(10), designed and recommended to support the policy-makers helping them to strengthen national emergency care systems. It is formed after global consultations with policy-makers and emergency care providers across all regions, and are a reference framework to characterize system capacity, set planning and funding priorities, and establish monitoring and evaluation strategies. Figure 2, illustrates the essential functions of an effective emergency care system, and the key human resources, equipment, and technology needed to execute them (organized by health systems building blocks). Figure 3 info graphic complements this by locating critical governance and oversight elements—including system protocols, certification and accreditation mechanisms, and key process metrics— within the Framework and also identified in the figure are essential overarching laws and regulations that govern access to emergency care, ensure coordination of system components, and regulate relationships between patients and providers.

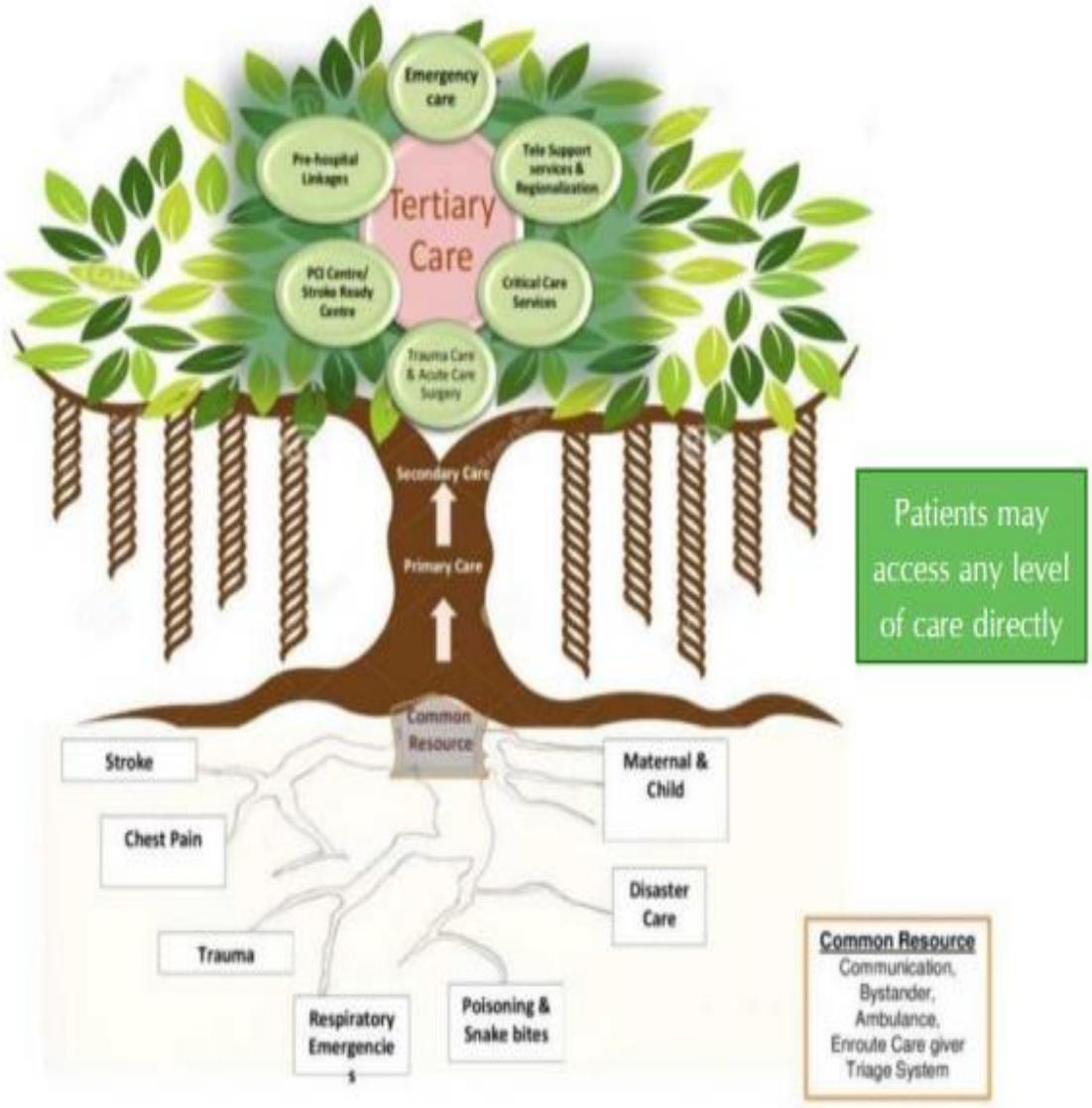


Figure 1: Adapted from WHO emergency care system framework. Integrated model: The roots feeding the Emergency Care System.

Figure 2: adapted from WHO emergency care system framework. Illustrates the essential functions of effective emergency care system, and the key human resources, equipment, and information technologies needed to execute them (organized by health systems building blocks).

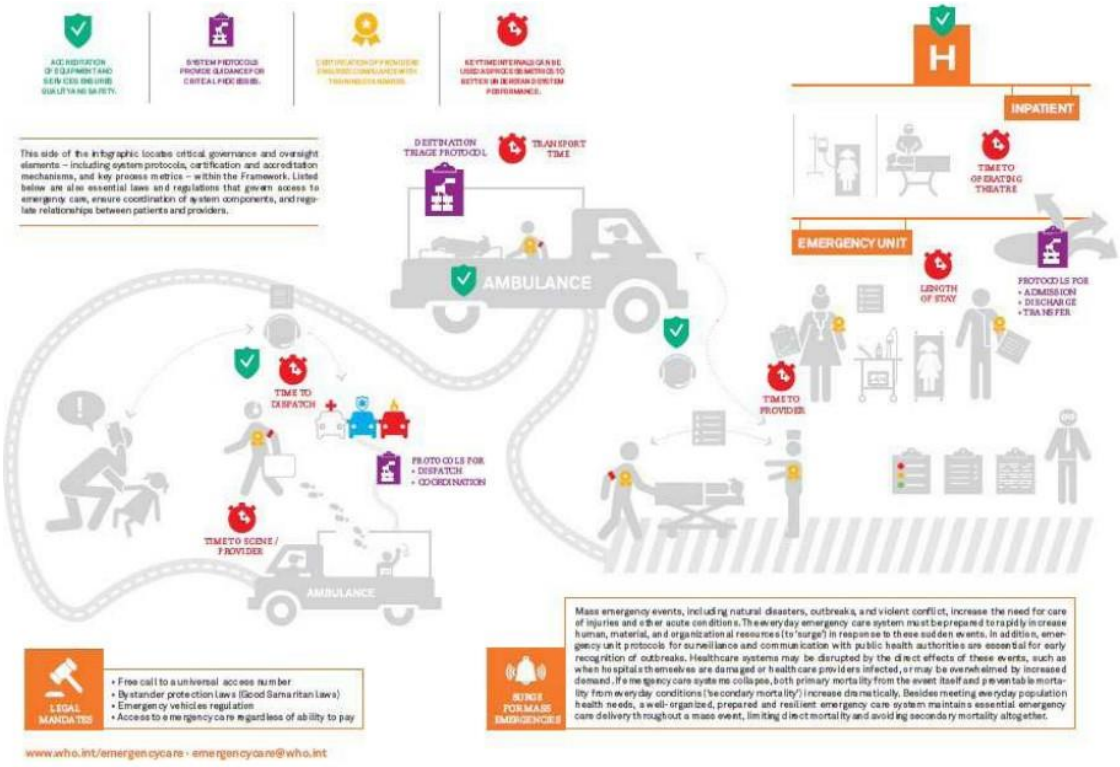


Figure-3: Adapted from WHO emergency care system framework.

Most low- and middle-income countries (LMICs) have struggle to find and have failed to develop a system for prehospital care that can provide adequate patient care with geographical coverage while maintaining a feasible price tag. The emergency medical systems of the Western world are not necessarily relevant and cannot be easily adopted in developing economic systems, given the lack of strict legislation, the scarcity of resources, and the limited number of trained personnel. Meanwhile, most efforts to provide prehospital care in India currently have taken the form of adapting Western models to the Indian context with limited success(11)

In a study from India evaluating the emergency transport out of 665 patients interviewed during the study period, 556 (83.61%) patients were males and 109 (16.39%) were females with M: F ratio been 5.10:1. of the first responders, 448 (67.36%) were lay persons and 42 (6.31%) were police personnel. 261 (39.25%) of patients were able to receive help within 10-30 min of RTA. Only 265 (39.84%) patients used the toll-free number and ambulance was

the mode of transport in 155 (23.30%) of RTA cases. 589 (88.58%) of patients reported to Government hospitals(12)

In a similar study from Nepal only 31% of the patients arrived to the emergency department in ambulance while rest of the patients used other forms of transport such as private vehicles (21%), bus (16%), taxi (13%), motorbike (11%) and van (7%). 155 out of 160 patients in the study mentioned the need of a trained medical personal in ambulance. The mean duration for waiting time for ambulance was 33.78 minutes. The main reasons to not using ambulance and opting for private transport was that they did not know the ambulance number and the ability to find other vehicles easily and having own private vehicle(13).

A US study evaluating the pattern of emergency transport particularly secondary to Age and Insurance status out of 30,455 (15%; 95% confidence interval [CI] 15% to 16%) patients arrived by ambulance and 162,091 (85%; 95% CI 84% to 85%) arrived by walk-in/self-transport. Overall, patients with government insurance were more likely to arrive by ambulance transport, at 34% (95% CI 33% to 35%), than the privately insured, at 11% (95% CI 10% to 11%). Among the critically ill, privately insured patients relied less on the ambulance transport, at 47% (95% CI 42% to 52%), than those with government insurance (61%; 95% CI 58% to 65%), the publicly insured (60%; 95% CI 52% to 67%), or the uninsured (57%; 95% CI 49% to 64%). Among the critically ill, patients aged 15 to 24 years and those older than 74 years were most the likely of the age groups to rely on ambulance transport, at 63% (95% CI 53% to 72%) and 67% (95% CI 62% to 71%), respectively. Fifty-seven percent (95% CI 54% to 59%) of the critically ill-used ambulance versus 15% (95% CI 14% to 15%) of noncritical patients. The study inferred that patients with public insurance, the uninsured, the elderly, and patients whom of which were critically ill disproportionately relied on ambulance transport to the ED(14).

In a study from Mumbai, India researching the transport of STEMI patients, out of the 1386 patients with STEMI, delayed presentations were seen in 1148 (>2hrs) and 805 (> 4hrs) patients. The average duration from onset of symptoms to the presentation in the emergency room (pre-hospital delay) was 228 ± 341minutes and the door to needle time was 34 ± 24 minutes. The two major factors for pre-hospital delay were misinterpretation of symptoms (45%) and the transportation problems (27%). The problem of pre-hospital delay was concluded to remain a major hurdle in the initiation of timely reperfusion therapy in patients

with acute STEMI. Lack of awareness and poor transportation facilities were the major contributors.(15)

A study by JIPMER Pondicherry on obstetrical and genealogical emergencies, of the 505 eligible women who attended the facility, 286 (56%) were referred from other institutions, while 44% were self-referred. Of all the patients one-third were from tertiary level facility and 40% from primary care facility. More than half of the referral was through verbal communication to the patient (60%); only one-third had referral slips. Around 40.4% chose bus and private vehicles (37.6%) as their means of transport; only around 10% travelled in 108 ambulances. The study called for the measures to improve the capacity building at primary setting, hierarchy of referral, quality of documentation, and emergency transport mechanism for obstetric patients (16).

A 2020 study including 18 medium and low-income countries and also India on orthopaedic emergencies published in 2020 included 31,255 patients with fractures, with a median age of 45 years of whom 19 937 (63·8%) were men, and 14 524 (46·5%) had lower limb fractures, making them the most common fractures. Of 5256 patients with open fractures, 3778 (71·9%) were not admitted to hospital within 2 h. Of 25 999 patients with closed fractures, 7141 (27·5%) were delayed by more than 24 h. Among patients delayed by more than 24 h, the most common reason for delays were interfacility referrals (3755 [47·7%] of 7875) and Third Delays (cumulatively interfacility referral and delay in emergency department: 3974 [50·5%]), while Second Delays (delays in reaching care) were the least common (423 [5·4%]).The study inferred that compared with other methods of transportation (eg, walking, rickshaw), ambulances led to delay in transporting patients with open fractures to a treating hospital (adjusted RR 0·66, 99% CI 0·46–0·93) and compared with patients with closed lower limb fractures, patients with closed spine (adjusted RR 2·47, 99% CI 2·17–2·81) and pelvic (1·35, 1·10–1·66) fractures were most likely to have delays of more than 24 h before admission to hospital(17)

A 2016 Indian study, estimated proportion of pregnant women transported by ‘108’ ambulance services in 5 states of the country. The ‘108’ service transported an estimated 12.7 % of obstetric emergencies in Himachal Pradesh, 7.2 % in Gujarat and less than 3.5 % in other states. Women who used the service were more likely to be from rural backgrounds and belonged to lower socio-economic strata of the population. Across states, the ambulance journeys traversed less than 10–11 km to reach 50 % of obstetric emergencies and less than

10–21 km to reach hospitals from the pick-up site. The overall time from the call to reaching the hospital was less than 2 h for 89 % to 98 % of obstetric emergencies in 5 states, although this percentage was only 61 % in Himachal Pradesh. Inter-facility transfers ranged between 2.4 % –11.3 % of all '108' transports.(18)

A 2019 study from USA Findings analysing the impact of transport by EMS suggested that patients transported to the hospital via ambulance are more likely than those who arrive by other means to receive 19 of the 20 analysed diagnostic testing and imaging services. The results were consistent with the notion that emergency department medical providers readily accept ambulance transport as a valid signal of patient acuity, regardless of true acuity level. Consequently, patients transported to the hospital via ambulance may be receiving a disproportionate amount of medical resources in an increasingly cost-conscious environment.(19)

A combined Indian and Australian study evaluated the prehospital notification application for use by ambulance and emergency clinicians to notify emergency departments (EDs) of an impending arrival of a patient requiring advanced lifesaving care. The primary outcome of the study was the proportion of eligible patients arriving at the hospital for which prehospital notification occurred. There were 208 patients in the preintervention and 263 patients in the postintervention period. The proportion of patients arriving after prehospital notification improved from 0% to 11% ($p<0.001$). Trauma bay was ready for more patients (RR 1.47; 95% CI: 1.05 to 2.05) and a trauma team leader present for more patients (RR 1.50; 95% CI: 1.07 to 2.10) but there was no association with mortality at hospital discharge (RR 0.94; 95% CI: 0.72 to 1.23), but the intervention resulted in significantly less risk of patients dying in the ED (RR 0.11; 95% CI: 0.03 to 0.39).The study concluded that the prehospital notification application for severely injured patients had limited uptake but implementation was associated with improved trauma reception and reduction in early deaths.(20)

A 2020 Korean Study evaluated prehospital factors in Out of Hospital cardiac arrests (OHCA). While bystander cardiopulmonary resuscitation (CPR) did not appear to significantly affect survival in younger people, use of an automated external defibrillator (AED) showed the largest effect size on the survival in all age groups.(21)

A 2018 study from Canada evaluated the components of trauma system which contribute to mortality and morbidity in injury outcomes and concluded that pre-Hospital Advanced Trauma Life Support was associated with a significant reduction in hospital days (mean

difference [MD] = 5.7 [4.4-7.0]) but a nonsignificant reduction in mortality (OR = 0.78 [0.44-1.39]), Population density of surgeons was associated with a nonsignificant decrease in mortality (MD = 0.58 [-0.22 to 1.39]), Trauma system maturity was associated with a significant reduction in mortality (OR = 0.76 [0.68-0.85]).(22)

A 2017 Mumbai study aimed to assess the effect of prehospital time and primary treatment given on survival of major trauma patients in a setting without prehospital care. In the study of the 1181 patients, 352 were admitted directly from the trauma scene and 829 were transferred from other hospitals. In-hospital mortality was associated with age, mechanism and mode of injury, shock, Glasgow Coma Score <9, Injury Severity Score ≥16, need for intubation, and ventilatory support on arrival; but neither with prehospital time nor with time to tertiary care. Transferred patients had a significantly higher mortality (odds ratio = 1.869, P = 0.005) despite fewer patients with severe injury.(23)

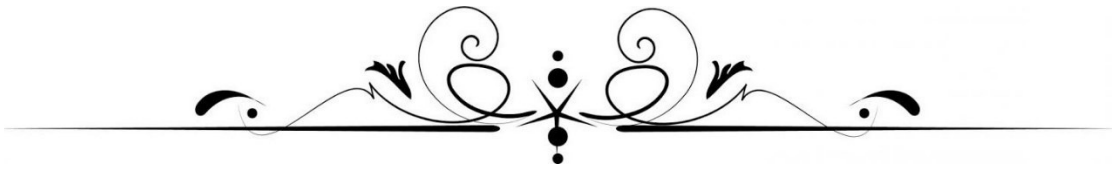
2012, study evaluating the impact of mode of transport concluded that the air medical transported more severely injured patients with more advanced life support procedures and longer prehospital time.(24)

The effects of private transportation (PT) to definitive trauma care in comparison to transportation using Emergency Medical Services (EMS) were evaluated with aim to investigate epidemiology, pre- and in-hospital times as well as outcomes in patients after PT as compared to EMS. 76,512 patients were included in the study, of which 1,085 (1.4 %) were private transports.

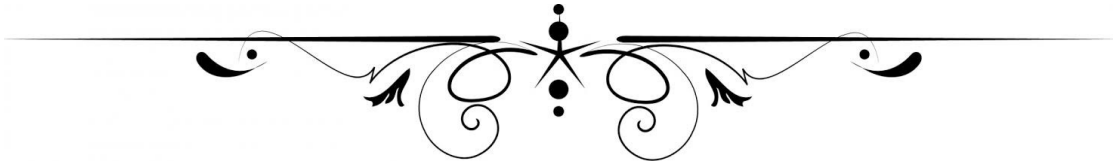
Distribution of ages and trauma mechanisms showed a markedly different pattern following PT, with more children < 15 years treated following PT (3.3 % EMS vs. 9.6 for PT) and more elderly patients of 65 years or older (26.6 vs 32.4 %). Private transportation to trauma care was by far more frequent in Level 2 and 3 hospitals (41.2 % in EMS group vs 73.7 %). Median pre-hospital times were also reduced following PT (59 min for EMS vs. 46 for PT). In-hospital time in the trauma room (66 for EMS vs. 103 min for PT) and time to diagnostics were prolonged following PT. Outcome analysis showed a survival benefit of PT over EMS transport (SMR for EMS 1.07 95 % CI 1.05–1.09; for PT 0.85 95 % CI 0.62–1.08).The study conclude that PT accelerates the median pre-hospital times, but prolongs time to diagnostic measures and time in the trauma room.(25)

Does rapid transportation benefit patients with trauma remains controversial and the same was studied in a study from 4 Asian countries in 2020.The results inferred that the longer

prehospital time was not associated with an increased risk of 30-day mortality, but it could be associated with increased risk of poor functional outcomes in injured patients. This finding supported the concept of the “golden hour” for trauma patients during prehospital care in the countries studied(26)



MATERIALS & METHODS



MATERIALS AND METHODS

6.1 Study Setting:

The study was conducted in the Department of Emergency Medicine, AIIMS Jodhpur

6.2 Study Duration:

Enrolment was carried out from 1 January 2021 to 30 June 2022.Total duration of study was 18 months.

6.3 Study Design:

Prospective observational study

6.4 Inclusion Criteria

1.Adult patients - All acutely injured patients in emergency categorised as red triage according to the AIIMS Triage Protocol will be included

2. Children – All acutely injured children in emergency categorised as per Emergency triage assessment and treatment (ETAT) will be included.

6.5 Exclusion Criteria

1. All acutely injured patients belonging to the green and yellow triage severity (Adults) and Priority and que (Children).

2. Patient/relative not willing to participate in the study.

3.All non-injured patients were excluded.

6.6 Sample size calculation

Limited data available on Pre hospital care of injured patient, thus we conducted a time bound study and all injured patient who arrived in emergency during duty hours of primary investigator were enrolled.

6.7 Study Population

The study included all injured patient who were fitting in the red triage protocol of AIIMS triage protocol for adult patient (Annexure-5) and Emergency triage according to ETAT

protocol (Annexure-6) for children who visited the emergency medicine department of AIIMS Jodhpur.

6.8 Enrolment

1.All injured patient fulfilling the eligibility criteria were enrolled in the study after taking written informed consent form patient or relatives.

2.Relatives of subjects who satisfied the above eligibility criteria were approached for participation in the study. Initially, the relatives were given a verbal explanation of the study. Relatives were given details about the relevance of the study and benefits. They were also provided with the participant information sheet which was printed in both Hindi and English Appendix.

3.Enrolment, recording of baseline information, type of transport used was done after written informed consent was obtained.

4.Screening, assessment of eligibility criteria, and obtaining consent was the responsibility of the primary investigator

6.9 Data Collection

The following baseline data were recorded by the thesis candidate in a structured Performa

1.Sociodemographic Details

2.Clinical parameters

3.Hemodynamic Parameters

5.Pre hospital care received

6.Mode of Transport

7.Disposition and Outcome

a. The acutely injured patient categorized as red triage according to the AIIMS triage protocol for the adult patients and ETAT guidelines for the paediatric population were enrolled in the study.

b. Data was collected for sociodemographic and clinical profile of patient.

c. The patients were assessed for the pre- hospital care received and the mode of transport used for receiving first medical contact.

d. Pre-hospital care- is emergency medical care given to patients before arrival in hospital after activation of emergency medical services.

It involves community paramedicine, novel roles such as emergency care practitioners and physician delivered pre hospital emergency medicine

e. The collected data was analysed to assess pre-hospital care and the modes of transport used by the patient and the variables associated with it.

f. survival outcome was recorded at 30 days of injury.

ACLS-Ambulance, ACLS generally includes interventions such as endotracheal intubation (ETI), intravenous cannulation and cardioactive drugs(27)

BLS-Ambulance, Basic Life Support (BLS) is medical care which is used to assure patient's vital functions until the patient has been transported to appropriate medical care. ALS-level prehospital care has usually been implemented by physicians or paramedics, while BLS-level care is given by paramedics or emergency medical technicians. However, in most cases ALS units use the same techniques as BLS units. BLS ambulance also includes facilities for cardioversion(28)

6.10 Statistical Analysis

Statistical Analysis: Data was analysed using IBM-SPSS (IBM SPSS Statistics for Windows, version 23.0, released 2011; IBM Corp., Armonk, NY, USA). Descriptive data was expressed as mean and percentages and compared using Chi-square and Fisher's exact test. Not normally distributed data was presented as median and IQR. $P \leq 0.05$ was considered statistically significant. Binomial logistic regression analysis was performed to test association of various risk factors with outcome of patients. The results of the logistic regression analysis were reported as adjusted odds ratios (ORs) with 95% CI.

RESULTS

RESULTS

A total 780 patients of red triage category arrived in emergency during the study period of 18 month out of which 217 injured patient were enrolled in study.

1. Sociodemographic Details of injured Patient

Gender Distribution- Out of the total 217 patients,12.9% were female and 87.1% were males. The patients were divided into following age group <18 yr,18-60 yr,>60 yr and 81.6% patients belonged to the 18–60-year age group followed by < 18 year which include 13.8 and >60-year age group include 4.6%.

Table-1: Socio-demographic details of the injured patient(n=217)

Age groups	Frequency	Percentage %
<18	30	13.8
18-60	177	81.6
>60	10	4.6
Gender		
Male	189	87.1
Female	28	12.9
Education		
Literate	126	58.1
Illiterate	91	41.9
District		
Barmer	53	23.0
Jaisalmer	10	4.6
Jalore	6	2.8
Jodhpur	84	38.7
Nagaur	20	9.2
Pali	40	18.4
Others	7	3.2

2. Time of arrival of injured patients-

Out of 217 Patients, maximum patients arrived Emergency during day time from 8 am to 10pm that is 189(85.7%) and 31(14.3%) arrived AIIMS hospital during 10pm-8am.

Table-2: Time of arrival of injured patients(n=217)

Time of arrival	Frequency
8am-10pm	186(85.7%)
10pm-8am	31(14.3%)
Total	217(100%)

3. First medical contact of injured patients

Out of 217 patients, maximum patient was able to get first medical contact in <=1 hour 179(84.8%) and 32(15.2%) patient took > 1 hour to get first medical contact.

Table-3: First medical contact of injured patients (n=211)

First medical contact	Frequency	Percentage
≤1 hour	179	84.8%
>1 hour	32	15.2%

4. Clinical Profile of injured Patients (n=217)

Out of 217 patients,30.9 % of injured patient had threatened airway,55% of injured patient had CCT positive and PCT Positive in 11.1% and 30.4 % injured patient had GCS of ≤ 8.

Table-4: Clinical Profile of Injured Patient

Airway	Frequency	Percentage
Clear	150	69.1
Threatened	67	30.9
Cervical Tenderness		
Absent	145	66.8
Not elicited	67	30.9
Present	5	2.3
Chest Compression Test		
Negative	162	74.6
Positive	55	25.4
Pelvic Compression Test		
Negative	193	88.9
Positive	24	11.1
eFAST		
Negative	129	59.5
Not done	9	4.1
Positive	79	36.4
GCS		
13-15	132	60.8
9-12	19	8.8
≤8	66	30.4

5. Hemodynamic parameters of injured patient-

Out of all injured patient included in study,4.6% of patient arrived pulseless in emergency and 27.5% of patient had SBP of ≤ 90 mm of hg,5% had respiratory rate of <10 and 17% had respiratory rate of >20.

Table 5: Hemodynamic Parameters of Injured Patient

Variables	**Frequency**	**Percentage**
Heart rate		
Pulseless	10	4.6
<100	90	41.5
100-120	61	28.1
120-140	30	13.8
>140	26	12
SBP		
≤90	60	27.5
>90	157	72.5
Sp02		
≤90	54	24.5
>90	163	75.5
Respiratory Rate		
<10	11	5.0
10-20	169	78.0
>20	37	17.0

6. Transport Profile of Injured Patients

Out of 217 patients,55.3% used private 4 wheeler to get fisrt medical contact ,20.7% by BLS equipped ambulance, 11.5% by autorickshaw,6.5 % by 2 wheeler,4.1% by ACLS equipped ambulance,1.8% by 4 wheeler.

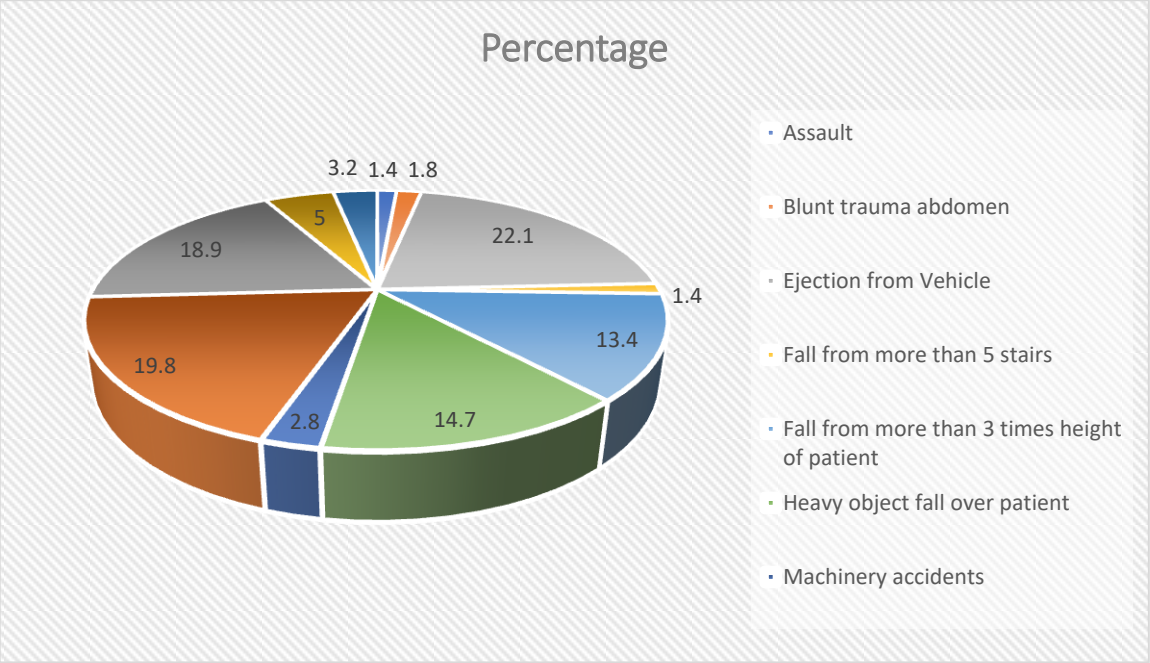
Table6: Transport Profile of Injured Patients (n=217)

Type of Transport	Frequency	Percentage
Ambulance BLS	45	20.7
Ambulance ACLS	9	4.1
2wheeler	14	6.5
Autorickshaw	25	11.5
4wheeler	120	55.3
Police Vehicle	4	1.8
Time of Injury to Transport Availability		
< =15 min	137	63.6
>15 min	78	36.4
Distance Between Site of Injury and Tertiary Health Centre		
<20	75	34.9
20-100	37	17.2
>100	103	47.9

Mechanism of Injury of Injured Patients(n=217)

Out of 217 patient, most common mechanism of injury was Ejection from vehicle 22.1% followed by Roll over of vehicles 19.8%, RTA others (with unknown mechanism or animal accidents) 18.9%, Heavy object fall over patient 14.7%, Fall from height 13.4%, stuck between 2 heavy vehicle 3.2%, Machinery accidents 2.8%, Blunt trauma abdomen 1.8%, Assault and Fall from stairs each comprised 1.4% and steering wheel injury 0.5%.

Figure 4: Demonstrates Mechanism of Injury of Injured Patients



7. Association of Mortality with Sociodemographic Profile of Injured Patient

No significant association was found between mortality and sociodemographic profile of injured patient that is age ,sex and education.

Table-7:Association of Mortality with Sociodemographic Profile of Injured Patient

Variables	Alive(n=168)	Dead(n=49)	P value
Age			
<18 yr	26(15.5)	4(8.2)	
18-60yr	134(79.8)	43(87.8)	
>60 yr	8(4.8)	2(4.1)	0.406
Gender			
Male	150(89.3)	39(79.6)	
Female	18(10.7)	10(20.4)	0.075
Education			
Literate	71(42.0)	20(40.8)	
Illiterate	97(57.7)	29(59.2)	0.875

8. Association of Mortality with Hemodynamic Parameters of Injured Patients

Statistically significant association was found between mortality with hemodynamic parameters of injured patients that is with heart rate, for patient in which advanced airway was applied and patient with GCS ≤8 and those who had SBP of ≤100.

Table -8: Association of Mortality with Hemodynamic Parameters of Injured Patients

Variables	Alive(n=168)	Dead(n=49)	P Value
Heart rate			
Pulseless	0(0)	10(20.4)	0.001
<100	76(45.2)	14(28.6)	
100-120	51(30.4)	10(20.4)	
120-140	23(13.7)	7(14.3)	
≥140	18(10.7)	8(16.3)	
eFAST			
Positive	65(39.6)	14(32.6)	0.395
Negative	99(60.4)	29(67.4)	
Intubation			
Yes	28(16.8)	31(63.3)	0.001
No	139(83.2)	18(36.7)	
Blood Transfusion			
Yes	50(29.8)	18(36.7)	0.355
No	118(70.2)	31(63.3)	
GCS			
13-15	129(76.8)	3(6.1)	0.001
9-12	13(7.7)	6(12.2)	
≤8	26(15.5)	40(81.6)	
SBP			
<100	48(26.8)	22(44.9)	0.031
≥100	120(71.4)	27(55.1)	

9. Association of Mortality with Time of Event and Time to First Medical Contact

No significant association was found between mortality with time of event and time to first medical contact.

Table-9: Association of Mortality with Time of Event and First Medical Contact

Variables	Alive (168)	Dead (49)	P value
Time of Event			
8am-10pm	143(85.1)	43(87.8)	0.643
10pm-8am	25(14.9)	6(12.2)	
Time to First Medical Contact			
≤1 hour	139(83.2)	40(90.4)	0.207
>1 hour	28(16.8)	4(9.1)	

10. Pre hospital care and Mortality-

99% injured patient did not receive any kind form of Pre hospital care only 2 patients receive pre hospital care in form of bleeding control by applying tight bandage.

Table 10.1-Association of Mortality with Treatment at Site of Injury

Variables	Alive (168)	Dead (49)	P value
Treatment at site			
No	167(99.4)	48(97.9)	0.345
Yes	1(0.6)	1(2.1)	

Cervical collar application-cervical collar form important part of pre hospital care but only 1.3% of injured patient received collar from primary health centres and remaining directly referred to tertiary hospital without collar.

Table 10.2-Association of Mortality with Cervical Collar Application

Cervical collar	Alive (168)	Dead (49)	P-value
Not applied	165(98.2)	49(100)	0.346
Applied	3(1.8)	0	

Tranexamic acid-None of the patient received Tranexamic acid in pre hospital settings neither at primary and community health centre. This table shows Tranexamic acid administration in tertiary health centre which had significant association with mortality.

Table 10.3-Association of Mortality with Tranexamic Acid Administration

TXA	Alive (168)	Dead (49)	P value
Yes	139(84.2)	32(65.3)	0.004
No	26(15.8)	17(34.7)	

11. Association of Mortality with Type of Transport

Statistically no significant association was found between mortality and type of transport used for transportation from site of accident to first medical contact.

Table:11-Association of Mortality with Type of Transport used.

Type of Transport	Alive	Dead	P value
Ambulance-BLS	36(21.4)	9(18.4)	0.427
Ambulance-ACLS	8(4.8)	1(2)	
2Wheeler	13(7.7)	1(2)	
Autorickshaw	19(11.3)	6(12.2)	
Private vehicle	90(53.6)	30(61.2)	
Police Vehicle	2(1.2)	2(4.1)	

12. Association of Mortality with Transport Availability and Distance to Tertiary Health Centre

Statistically no significant association was found between mortality and time to transport availability and distance between site of accident and tertiary health care centre,

Table:12 Association of Mortality with Transport Profile of Injured Patient

Variables	Alive	Dead	P value
Time to trauma and transport availability			
<15min	97(59.9)	34(75.6)	0.136
15-30 min	35(21.6)	7(15.6)	
>30 min	30(18.5)	4(8.9)	
Distance between site of accident and Tertiary health care centre			
<20	56(33.7)	19(38.8)	0.809
20-100	29(17.5)	8(16.3)	
>100	81(48.8)	22(44.9)	

Disposition of Trauma patients

Among all patients enrolled in study,49.8 % of injured victim admitted under general sugery,18.4% under neurosurgery,14.7% under Orthopaedics and 3.2% under PICU.5.5% trauma patient died in emergency ,0.9% took LAMA, and 7.4% patients were referred.

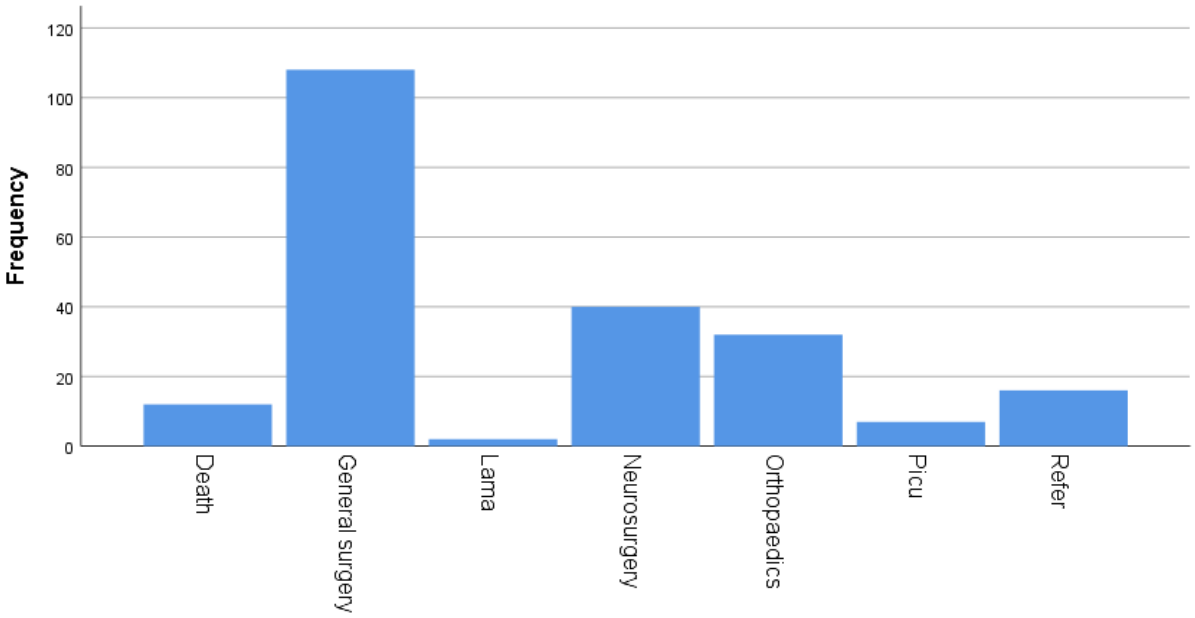


Figure 5: Demonstrating Disposition and Outcome of Injured Patients.

13. Association of Mortality with Multiple factors (Logistic Regression)

In comparison to patient who were having GCS 13-15, patient having less GCS score as 9.12(AOR=14.10,19% CI 2.82,70.44) and less than 9 (AOR =107.39,95%CI 22.64 ,509.25) were having higher odds of mortality.

Patient who was having SBP <=100 was found with 4.2 times higher odds of mortality as compared to their counterpart.

Table -13: Association of Mortality with Multiple Factors

Variable			95% confidence interval	
	P value	AOR	Lower	Upper
GCS-<9	.001	107.3	22.6	509.2
Intubation	.718	1.2	.413	3.6
Tranexamic acid	.106	2.4	.828	7.1
SBP<=100	.008	4.2	1.4	12.1

DISCUSSION

Discussion

We conducted a prospective observational study for a duration of 18 month. All injured patients who were categorized as red according to AIIMS triage protocol and Emergency according to ETAT protocol were enrolled. Out of 217 patients enrolled in study, we found only 2 patients received Pre-Hospital care at site of accident and remaining 215 enrolled did not receive any treatment at site of injury nor do they receive any treatment during transport to first medical contact. 2 patients who received Pre-Hospital care in both patient it was in form of bleeding control by application of tight bandage. In our study mortality rate was 22.6% and among all the variables patients with GCS < 9 and SBP ≤ 100 were found to be significant associated with mortality.

The study was mainly done to look for the EMS services in western Rajasthan. We found only 24.8% injured patient received ambulance services to reach initial health facility. Though 24.8% of injured patient used ambulance services but only 2 (0.02%) of injured patient received medical intervention at the site of injury in form of bleeding control by application of pressure bandage and remaining injured patient who used ambulance services did not receive any pre hospital care at the site of accident or during transport to first medical hospital. The study showed relatives and bystander were the first responder for trauma care.

Sociodemographic Variables and its Impact

In our study the percentage of men were 87.1% while women were 12.9% and the maximum patients belonged to the age group of 18-60yr with 81.6%.The results of our study were similar to a 2020 study by Jain et al(29) with the male to female ratio of 4.4:1 and the predominant involvement of 21-30 age group and similar to this study in which the maximum number of arrivals occurred between 2-6pm, in our study the maximum arrivals were between 8 am to 10pm . This highlights the involvement of predominantly young males in the trauma cases as men have a higher likelihood of involving in risky driving behaviours such not wearing a seatbelt, driving under the influence of alcohol as well speed driving. Men typically drive more miles than women. And its overall impact on society in total as it's the economically productive section of our society and also the prevalence of these accidents highlights the congestion on the roads and the negligence of the traffic rules by citizens leading to accidents. And absence of a significant night life in our region might be the reason

for relatively low accidents at night 31(14.3%) in our study the opposite was found in the study conducted by Mishra et all in their 2017 study(30).

The term "golden hour" is used to characterize the urgent need for the care of trauma patients. This term implies that morbidity and mortality are affected if care is not instituted within the first hour after injury. In our study 179 patients (84.8%) patients were transported to a health facility within 1 hour of the accident while in case of 32 patients (15.2%) the time to first medical transport was greater than 1 hour which is considered as golden hour for trauma.

But we did not observe the association of shorter time to definitive care with a decrease in mortality. The results of our study were similar to study conducted in Japan (31) in which Median time from injury to definitive care was 137 min. Only 61 patients (5.2%) received definitive care within 60 minutes and no significant association was found between shorter time to definitive care with decrease in mortality.

Although the patients presenting within the golden hour were high in our study it did corroborate with any survival benefit according to our study which highlights the importance of the quality of the services being offered at the first medical contact points in trauma cases that is the PHCs, CHCs and the district hospital which calls out the importance of training and empowering the medical staff at these hospitals with acute trauma and emergency care. Also, in our study 10 patients were brought pulseless without any resuscitation attempts in the ambulance or at the primary care centre, which also highlights the importance of primary management at primary care centres and the training of the ambulance personals at basic resuscitation steps and care.

Clinical Variables of Injured Patient

A total of 30.9 % of patient had threatened airway on arrival in emergency and 30.4 % had GCS of <9 on arrival in emergency. We found a significant association between mortality and patient with GCS of <9. None of these patients received emergency medical care neither at site nor during transportation to first medical facility to bring out the real scenario patients who were referred form primary health care to tertiary health care their airway was not managed. only 2 patient received cervical collar from primary health centre and others were directly refer to AIIMS. In 11.1 % of injured patient had pelvic compression test positive on

arrival with no intervention done for stabilization of pelvis during transportation. These data are to reflect how much is it important to bring change in health system of Western Rajasthan. Intervention at every level of Primary assessment can bring about change in outcome and survival of injured patients.

Role of Bystander in Injured Victim

In our study 4.6 % of study population was brought pulseless in emergency, without any resuscitation attempt by bystander, in the ambulance or at the primary care centre, which also highlights the importance of primary management at primary care centres and the training of the ambulance personals at basic resuscitation steps and care. Bystander basic life support can likely improve victim survival in injury. In a study by Bakke et al a total of 330 trauma calls were included, with bystanders present in 97% of cases. Securing an open airway was correctly performed for 76% of the 43 patients in need of this first-aid measure. Bystanders with documented first-aid training gave better first aid than those where first-aid training status was unknown (32). In our health setting we can bring about change in survival of patient by doing intervention at site of injury. Training of bystander in providing first aid at site of injury can bring a lot of change in health care system of India. For best possible prehospital trauma care expected actions from trained bystanders are: getting involved, call for help, assessing the safety of the scene, assessing the victim, capable of appreciating seriousness of emergency and extend initial care.

Figure 6-Commonly used Ambulance for interhospital transport.

Transport Profile of Injured Patient

A total of 54 patients (24.8%) (45 in BLS and 9 in ACLS) were transferred in ambulance while the maximum of patients, 120 (55.2%) were transferred in private 4 wheelers while the other modes of transportation were 2 wheelers (6.5%), police vehicles (1.8%). In the study by Jain et all 57% patients were transported in ambulances while 29% patients were transported in PCRs. The study by Jain et all was performed in the state capital city of Bhubaneshwar which could be the reason for high ambulance usage due to greater awareness as well as easy availability while our study included patients from both the rural and urban parts of western Rajasthan including Jodhpur 84 patients (38.7%), Barmer 53 patients(23%),Pali 40 patients (18.4%), Nagaur (9.2%), Jaisalmer (4.6%), Jalore (2.8%).Lack of availability , delayed expected arrival of ambulance, easy availability of private vehicles were some of the reason for not using ambulance as primary mode of transport to first medical contact, Also, the low ambulance utilisation can be attributed to 41.9% prevalence of illiteracy in our patients.

In our study we found there were 36.4% of injured patient who did not receive any transportation facility even after 15 min of injury. This 15 min are significant to impact someone survival. This again highlight the importance of developing Emergency Medical Services in India.

Pre-Hospital Intervention in Injured Patient and Mortality

In our study only 2 patient received care at site of injury by application of pressure bandage at site of bleed.99.1% of patient did not receive any form of pre hospital care neither at site nor during transportation to first medical contact. No significant association was found between prehospital care and mortality. Our results were contradictory to the study conducted by Jonathen P et al where pre hospital intervention was associated with a lower incidence of mortality in severely injured trauma patients and do not delay transport to definitive care (33).

Cervical collar application has form integral part in management of trauma patient. But in our study only 3 patients received cervical collar from primary health centre. Remaining patient did not receive any form of cervical spine motion restriction in any health centre which includes PHC, District hospital etc.

"Early administration of TXA safely reduced the risk of death in bleeding trauma patients and is highly cost-effective". Treatment beyond 3 hours of injury is unlikely to be effective. Our study also replicated the results of the CRASH 2 study with the correlation of the administration of tranexamic acid and mortality in our patients with 139 out of the 171 Tranexamic acid administered patients surviving (p value - 0.004) in our knowledge this is the first study from western Rajasthan which shows the utility if early tranexamic acid administration in patients. As Tranexamic acid reduced the risk of death in bleeding trauma, government can ensure supply of these medications at all hospital. The way Inje diclofenac and Inje tetanus toxoid is empirically used in trauma patient, we can advocate the use of tranexamic acid.

The 30 day mortality in our study was 49 patients (22.5%) which was much higher than 1% reported by Jain et all and also 6.3% reported by Singh et al(34) which can be attributed to the inclusion criteria of only red category patients in our study while the above mentioned studies involved even the green and the yellow category patients.

Important Hemodynamic Parameters of Injured Patient

On analysing the various parameters with statistically significant relation to mortality were pulseless at presentation (p value- 0.001), patient which had to be intubated at presentation (p value- 0.001) GCS <8 (p value- 0.001) and systolic blood pressure less than 100 (p value- 0.031). Low GCS was also significantly associated with mortality in patients with trauma in a study by Yadohali et al(35).As discussed above there was no correlation of mortality to the presentation within the first medical contact.

Mode of Transport and Mortality

It an important finding there was no correlation with the mode of transport with the survival with patients being transported in ambulance having no superior survival benefit. Only 3 patients out of the 217-study patient were given prehospital care. Wandling et al(26) in their study also noticed survival benefit for patients transported by private vehicles over EMS services. This could be the result of several reasons.

1) Use of ambulance only as a transportation vehicle with no provision of prehospital treatment

2) Lag in the time between communication to the EMS and the initiation of the transit to the hospital

3) Transport of comparatively severely injured patients in ambulance rather than private vehicles.

STRENGTH OF STUDY

1. Till date there are only a few published studies from India and only study from Western Rajasthan on the Pre-hospital care and mode of transport on clinical outcome of acutely injured patient.

2. Our study evaluated the impact of both the prehospital care and the emergency transport services on the 30-day mortality which is unexplored area in the emerging paradigm of the emergency services in India.

3. Our study included both the paediatrics and adult populations.

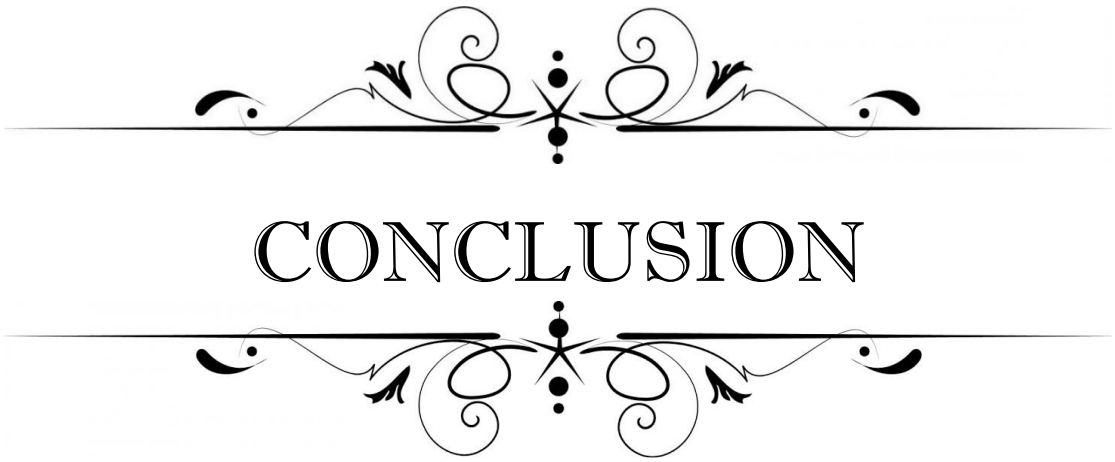
4. Various clinical interventions in the emergency and their impact on mortality was evaluated in the subgroup analysis such as effect of tranexamic, cervical collar application, which justify future detailed studies on the same.

LIMITATIONS OF STUDY

1. The small size of the study can be attributed to covid pandemic.

2. Many patients brought by bystander thus exact detail could not be collected.

3. Any formal inspection of the ambulances was not performed for the presence and absence of facility.



CONCLUSION

CONCLUSION

Pre-hospital care- is emergency medical care given to patients before arrival in hospital after activation of emergency medical services. It involves treatment at site of injury and treatment during transportation to definitive care. It involves community paramedicine, novel roles such as emergency care practitioners and physician delivered pre hospital emergency medicine-hospital care is underexplored, underdeveloped and neglected part of emergency services in India. Our study highlighted the lack of prehospital care and training in pre hospital set up, and no significant association was found between pre hospital care and mode of transport on clinical outcome of patient, highlighting the necessity of mainstream reforms in the setup. In our study only few injured patients were transported through ambulance services due to poor availability of EMS services in Western Rajasthan. Further large scale study are required to understand the lacunae in the current EMS setup and steps necessary to improve upon the existing model.

SUMMARY

SUMMARY

Introduction-Emergency transport service is the weakest link in the care of acutely sick patients. EMS is system of care was borne out of the need to improve the outcome of ill and injured patient. EMS provide health care using wide variety of model, but little is known about the quality of care they provide. The goal of emergency medical services is to either provide treatment to those in need of urgent medical care, with the goal of satisfactorily treating the malady or arranging for timely removal of patient to the next point of definitive care.

Objectives of Study-To study the impact of pre-hospital care and mode of transport on clinical outcome of acutely injured patient coming to emergency at a tertiary care hospital in Jodhpur.

Methodology- The study included all injured patient who were fitting in the red triage protocol of AIIMS triage protocol for adult patient (Annexure-5) and Emergency triage according to ETAT protocol (Annexure-6) for children who visited the emergency medicine department of AIIMS Jodhpur. Data was collected for sociodemographic and clinical profile of patient. The patients were assessed for the pre- hospital care received and the mode of transport used for receiving first medical contact. The collected data was analysed to assess pre-hospital care and the modes of transport used by the patient and the variables associated with it.

Discussion-. Out of 217 patients enrolled in study, we found only 2 patients received Pre-Hospital care at site of accident and remaining 215 enrolled did not receive any treatment at site of injury nor did they receive any treatment during transport to first medical contact. Among 2 patients who received Pre-Hospital care in both patient it was in form of bleeding control by application of tight bandage. In our study mortality rate was 22.6% and among all the variables patients with GCS < 9 and SBP ≤ 100 were found to be significant associated with mortality. We found only 24.8% injured patient received ambulance services to reach initial health facility. Though 24.8% of injured patient used ambulance services but only 2 (0.02%) of injured patient received medical intervention at the site of injury. In our study no significant association was found between the pre-hospital and mode of transport on clinical outcome of acutely injured patient it can be due to use of ambulance only as a transportation vehicle with no provision of prehospital treatment, lag in the time between communication to

the EMS and the initiation of the transit to the hospital. In our study 4.6 % of study population was brought pulseless in emergency, without any resuscitation attempt by bystander, in the ambulance or at the primary care centre, which highlights the importance of primary management at primary care centres and the training of the ambulance personals at basic resuscitation steps and care. Bystander first aid and basic life support can likely improve victim survival in trauma.

Conclusion- Our study highlighted the lack of prehospital care and training in pre hospital set up, and no significant association was found between pre hospital care and mode of transport with on clinical outcome of patient, highlighting the necessity of mainstream reforms in the setup.

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BIBLIOGRAPHY

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ANNEXURES

Annexure-1

All India Institute of Medical Sciences Jodhpur, Rajasthan

Informed Consent Form

Title of Thesis/Dissertation: **IMPACT OF THE PRE-HOSPITAL CARE AND MODE OF TRANSPORT ON CLINICAL OUTCOME OF ACUTELY INJURED PATIENT COMING TO EMERGENCY AT A TERTIARY CARE HOSPITAL IN JODHPUR**

Name of PG Student: Dr Bharti Gindlani

Patient/Volunteer Identification _____

I,_____S/o or D/o_____

R/o_____give my full, free, voluntary consent to be a part of the study **IMPACT OF PRE-HOSPITAL CARE AND MODE OF TRANSPORT ON CLINICAL OUTCOME OF ACUTELY INJURED PATIENT COMING TO EMERGENCY AT A TERTIARY CARE HOSPITAL IN JODHPUR** the procedure and nature of which has been explained to me in my own language to my full satisfaction. I confirm that I have had the opportunity to ask questions. I understand that my participation is voluntary and I am aware of my right to opt out of the study at any time without giving any reason. I understand that the information collected about me and any of my medical records may be looked at by responsible individual from _____(Company Name) or from regulatory authorities. I give permission for these individuals to have access to my records.

Date: _____ _____

Place: _____ Signature/Left thumb impression

This to certify that the above consent has been obtained in my presence.

Date: _____ _____

Place: _____ Signature of PG Student

Witness 1 Witness 2 Signature

Signature Name: _____ Name: _____

Address: _____ Address: _____

Annexure-2

अ खल भारतीय आयु र्वज्ञान संस्थान जोधपुर, राजस्थान

थी सस: जोधपुर में तृतीयक देखभाल अस्पताल में आपात स्थिति में आने वाले गंभीर रूप से घायल रोगी के नैदानिक परिणाम पर पूर्व-अस्पताल देखभाल और परिवहन के मोड का प्रभाव

पीजी छात्र का नाम: डॉ भारती गंदलानी

रोगी/स्वयंसेवक की पहचान _____

मैं,_____S/o या D/o_____

R/o_____ अध्ययन का हिस्सा बनने के लए अपनी पूर्ण, स्वतंत्र, स्वैच्छिक सहमति देता हूं। जोधपुर के एक तृतीयक देखभाल अस्पताल में आपातकालीन स्थिति जिसकी प्र क्रया और प्रकृति मुझे मेरी अपनी भाषा में पूरी संतुष्टि के लए समझा दी गई है। मैं पुष्टि करता हूं क मुझे प्रश्न पूछने का अवसर मला है। मैं समझता हूं क मेरी भागीदारी स्वैच्छिक है और मैं बिना कोई कारण बताए कसी भी समय अध्ययन से बाहर होने के अपने अ धकार से अवगत हूं। मैं समझता हूं क मेरे और मेरे कसी मे डकल रिकॉर्ड के बारे में एकत्र की गई जानकारी को _____ नियामक अ धकारियों से जिम्मेदार व्यक्ति द्वारा देखा जा सकता है। मैं इन व्यक्तियों को मेरे रिकॉर्ड तक पहुंच की अनुमति देता हूं।

तारीख : _____ _____

स्थान : _____ हस्ताक्षर/बाएं अंगूठे का निशान

यह प्रमा णत कया जाता है क उपरोक्त सहमति मेरी उपस्थिति में प्राप्त की गई है।

तारीख : _____ _____

स्थान: _____ पीजी छात्र के हस्ताक्षर

साक्षी 1 साक्षी 2

हस्ताक्षर का नाम: नाम:

पता पता :

Annexure-3

Patient information sheet

Name of the patient:

Patient ID.:

IMPACT OF PRE-HOSPITAL CARE AND MODE OF TRANSPORT ON CLINICAL OUTCOME OF ACUTELY INJURED PATIENT COMING TO EMERGENCY AT ATERTIARY CARE HOSPITAL IN JODHPUR

1. You are participating a study to understand the various parameters associated with transport of sick patient in emergency.

2. We will be collecting information regarding patient nature of disease, demographic details of patient, ambulance services they received, time taken by ambulance to reach, adequacy of services provided.

3. Study procedure-we will ask you to fill a proforma regarding the patient nature of disease and ambulance services they received.

4. Likely benefit: The study will serve to raise the awareness about the transportation facilities available currently for the transport of patients and the potential complications that can happen given the lack of same. The study will also add to the depleted pool of research on this subject topic.

5. Confidentiality: All the data collected from you will be kept highly confidential.

6. Risk: Enrolment in above study poses no substantial risk to you as all procedures performed are part of routine clinical care. You can withdraw from the study at any point of time without any consequences. For further information / questions, the following personnel can contact.

Dr Bharti Gindlani, Junior Resident, Department of Emergency Medicine, All India Institute of Medical Sciences, Jodhpur, Rajasthan.

Annexure-4

रोगी सूचना पत्रक

रोगी का नाम:

रोगी आईडी।:

जोधपुर में एर्टेरीयर केयर अस्पताल में गंभीर रूप से घायल रोगी के आपात स्थिति में आने के नैदानिक परिणाम पर पूर्व-अस्पताल देखभाल और परिवहन के साधन का प्रभाव

1. आप आपात स्थिति में बीमार रोगी के परिवहन से जुड़े व भन्न मापदंडों को समझने के लए एक अध्ययन में भाग ले रहे हैं।

2. हम रोग की रोगी प्रकृति, रोगी का जनसांख्यिकीय ववरण, उन्हें प्राप्त एम्बुलेंस सेवाओं, एम्बुलेंस द्वारा पहुंचने में लगने वाले समय, प्रदान की गई सेवाओं की पर्याप्तता के बारे में जानकारी एकत्र करेंगे।

3. अध्ययन प्र क्रया- हम आपको रोग की रोगी प्रकृति और उन्हें प्राप्त एम्बुलेंस सेवाओं के संबंध में एक प्रोफार्मा भरने के लए कहेंगे।

4. संभा वत लाभ: यह अध्ययन रो गयों के परिवहन के लए वर्तमान में उपलब्ध परिवहन सु वधाओं और इसकी कमी के कारण होने वाली संभा वत जटिलताओं के बारे में जागरूकता बढ़ाने का काम करेगा। यह अध्ययन इस वषय पर शोध के घटे हुए पूल को भी जोड़ेगा।

5. गोपनीयता: आपसे एकत्र कए गए सभी डेटा को अत्य धक गोपनीय रखा जाएगा।

6. जो खम: उपरोक्त अध्ययन में नामांकन से आपके लए कोई बड़ा जो खम नहीं है क्यों क की गई सभी प्र क्रयाएं निय मत नैदानिक देखभाल का हिस्सा हैं। आप कसी भी समय बिना कसी परिणाम के अध्ययन से पीछे हट सकते हैं। अ धक जानकारी/प्रश्न के लए निम्न क र्मयों से संपर्क कया जा सकता है।

डॉ भारती गंदलानी, जूनियर रेजिडेंट, इमरजेंसी मे ड सन वभाग, अ खल भारतीय आयु र्वज्ञान संस्थान, जोधपुर, राजस्थान।

Annexure-5

DESCRIPTION OF ALL INDIA INSTITUTE OF MEDICAL SCIENCES TRIAGE PROTOCOL TRAUMA SETTING, NEW DELHI

RED TRIAGE	YELLOW TRIAGE	GREEN TRIAGE
1.Threatened Airway 2.Breathing-Sp02 <94%, RR-<10 or >20 3.Circulation-PR<50 or >100 SBP<100 4.GCS-<=12, Suspected cervical spine injury Responding only to Painful stimuli	1.Airway patent 2.Breathing- RR10- 20 Spo2>94% 3.Circulation -PR 50 -100 SBP->90 4.GCS->12 Responding to verbal commands	1.Airway Patent 2.Breathing -RR-10-20 Spo2->94% 3.Circulation-PR 50-100 SBP->90 4.GCS=15
1. Gunshot wound 2. Stab wound – head/neck/ torso 3. Major vascular injury 4. Open fracture excluding hand and feet 5. two or more long bone fracture 6. Flail Chest 7. Chest trauma with surgical emphysema 8. CCT positive 9 Crush injury, pulseless extremity 10.visible neck swelling 11.suspected sexual assault	1. OPEN OF CLOSED FRACTURE OF HAND/FEET 2. ISOLATED LONG BONE FRACTURE 3. PENETRATING INJURIES TO EXTREMETIES 4. GCS 15 WITH ➢ ALCOHOL INTOXICATION ➢ H/O LOC OR VOMMITING ➢ H/O ANTICOAGULATION ➢ ENT BLEED ➢ LIMB WEAKNES	Injuries identified 1. Abrasion 2.Laceration 3.Bruise 4.Isolated fracture of small bones of hands /feet 5.Only medicolegal examination

Mechanism of Injury		
RED TRIAGE	**YELLOW TRIAGE**	**GREEN TRAIGE**
1. Fall from more than three times height of patient 2. Fall from more than five stairs 3. Railway track injury 4. Stuck between two heavy vehicles 5. Roll over of vehicles 6. Ejection from vehicle prolonged extraction time from vehicle 7. Blunt trauma abdomen 8. Steering wheel injury 9. Heavy object falls over patient	1.Fall from less than thrice the height of patient 2.fall from less than 5 stairs pregnancy 3.Suspected child abuse 4.Suspected elderly abuse 5. Significant assault	Not meeting criteria for red or yellow

Annexure-6

ETAT Protocol-for Emergency Signs in Injured Child

1.Obstructed or absent breathing

2.Severe respiratory distress

3.Central cyanosis

4.Signs of shock (defined as cold extremities with capillary refill time > 3 s and weak, fast pulse)

5.Coma (or seriously reduced level of consciousness)

6.Seizures

7.Signs of severe dehydration in a child with diarrhoea with any two of the following signs: lethargy or unconsciousness, sunken eyes, very slow return of skin after pinching

Annexure -7

Data Record Form

IMPACT OF PRE-HOSPITAL CARE AND MODE OF TRANSPORT ON CLINICAL OUTCOME OF ACUTELY INJURED PATIENT COMING TO EMERGENCY AT ATERTIARY CARE HOSPITAL IN JODHPUR

Date:

PATIENT PROFILE

1.Patient Name

2.Age

3.Gender

4.Identification Number

5.Contact Details

6.Residence

7.Socio Economic details

8.Education-

9.Occupation

10.Time of arrival

11.Place of events

12.Time of event

13.Time to first medical contact

14.Time to Trauma centre

15.Contact no. of EMS

CLINICAL PROFILE

1.Type of injury

2.Mechanism of injury

3.Airway- clear/Threatened

4.Cervical tenderness

5.Cervical collar

6.SpO2

7.Respiratory rate

8.Chest compression test

9.Air entry in chest

10.Heart rate

11.Systolic blood pressure

12.Diastolic blood pressure

13.Pulse volume

14.Capillary refill time

15.Pelvic compression test

16.eFast

17.GCS

18.Bilateral pupils

19.Exposures

Management of injured patients in tertiary health centre

1. Cervical collar-applied or not
2. Positioning
3. Suction
4. Intubation
5. Breathing
6. Fluid bolus
7. Pelvic binder

8. Blood transfusion
9. CPR

10.Tranexamic acid

11.Dressings

12.Laprotomy

13 Closed reductions

14 CT scan

15Evd

TRANSPORT PROFILE

1.Type of transport facility used

ambulance /Two-wheeler/Four-wheeler/Autorickshaw/Police vehicle Others

2.Paid/Unpaid facility-

3.Awareness of the contact details of the government ambulance

4.Was the government ambulance service was contacted before using the other mode of transport-Yes/No

5.If Yes to the above question why was the service not used

6.Any reason for the current service used

7.Was the ED pre-informed about the referral and the anticipated time of reaching the emergency

8.Time between call for transport service to the time of initiation of transit

9.Time taken for transportation

10.Distance between the two facilities

11.Knowledge of the available facilities regarding the patient disease available in the Hospital among the Ambulance service providers

12.Any complications during the transit

13.Any kind of treatment administered during the transit

14.Documentation of the events occurring during the transport

15.For trauma patients –Limb immobilisation/Neck stabilisation done –Yes/No

16.Document any prehospital management /Drug that should have been administered which was not done

17.Issues faced during transport according to the relatives

Annexure-8

अखिल भारतीय आयुर्विज्ञान संस्थान, जोधपुर
All India Institute of Medical Sciences, Jodhpur
संस्थागत नैतिकता समिति
Institutional Ethics Committee

No. AIIMS/IEC/2021/3463 Date: 12/03/2021

ETHICAL CLEARANCE CERTIFICATE

Certificate Reference Number: **AIIMS/IEC/2021/3298**

Project title: **"Impact of the Pre hospital Care and Mode of Transport on Clinical Outcome of Acutely Injured Patients coming to Emergency at a Tertiary Care Hospital in Jodhpur"**

Nature of Project:	**Research Project Submitted for Expedited Review**
Submitted as:	**M.D. Dissertation**
Student Name:	**Dr. Bharti Gindlani**
Guide:	**Dr. Bharat Choudhary**
Co-Guide:	**Dr. Ashok Kumar Puranik, Dr. Mahaveer Singh Redha, Dr. Manoj Kumar Gupta, Dr. Ankur Sharma & Dr. Mahendra Kumar Garg**

Institutional Ethics Committee after thorough consideration accorded its approval on above project.

The investigator may therefore commence the research from the date of this certificate, using the reference number indicated above.

Please note that the AIIMS IEC must be informed immediately of:

- Any material change in the conditions or undertakings mentioned in the document.
- Any material breaches of ethical undertakings or events that impact upon the ethical conduct of the research.

The Principal Investigator must report to the AIIMS IEC in the prescribed format, where applicable, bi-annually, and at the end of the project, in respect of ethical compliance.

AIIMS IEC retains the right to withdraw or amend this if:

- Any unethical principle or practices are revealed or suspected
- Relevant information has been withheld or misrepresented

AIIMS IEC shall have an access to any information or data at any time during the course or after completion of the project.

Please Note that this approval will be rectified whenever it is possible to hold a meeting in person of the Institutional Ethics Committee. It is possible that the PI may be asked to give more clarifications or the Institutional Ethics Committee may withhold the project. The Institutional Ethics Committee is adopting this procedure due to COVID-19 (Corona Virus) situation.

If the Institutional Ethics Committee does not get back to you, this means your project has been cleared by the IEC.

On behalf of Ethics Committee, I wish you success in your research.

Dr. Praveen Sharma
Member Secretary
Member secretary
Institutional Ethics Committee
AIIMS,Jodhpur

Basni Phase-2, Jodhpur, Rajasthan-342005; **Website:** www.aiimsjodhpur.edu.in; **Phone:** 0291-2740741 Extn. 3109
E-mail : ethicscommittee@aiimsjodhpur.edu.in; ethicscommitteeaiimsjdh@gmail.com

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2022-08-02	2022-08-18	########	Sampat lal	Male	50	7.73E+09	2022/08/0	jodhpur	Farmer	Illeterate	21:00:00	Jalamand	19:00:00	Half hour	2 hour	Reffered		Low
2022-08-02	2022-08-18	########	Hari ram	Male	39		2022/08/0	jodhpur	...	..	13:45:00	Jodhpur	13:15:00	Half hour	Half hour	self	..	Low
2022-08-01	2022-08-18	########	Kaali	female	23	7.02E+09	2022/08/0	Nagaur	House wife	Illeterate	20:30:00	Nagore	16:00:00	25 min	4.5 hr	Reffered		Middle
2022-07-24	2022-08-18	########	Jeevan	Male	55		2022/07/0	jodhpur	Farmer	Graduation	14:45:00	JODHPUR	14:30:00	15 min	15 min	self		Low
2022-07-23	2022-08-18	########	Ravena	female	21	9.8E+09	2022/07/0	BARMER	Housewife	10	14:00:00	Baramer	11:00:00	10 min	3 hour	Reffered		Low
2022-07-23	2022-08-18	########	Dinesh	Male	15	7.57E+09	2022/07/0	Nagaur	Student	11	13:30:00	Nagaore	11:15:00	2 hour	2 hour	self		Low
2022-06-10	2022-08-18	########	Om prakas	Male	22	9.6E+09	2022/06/0	jodhpur	Mecahnic	10 pass	21:30:00	Jodhpur	17:00:00	Half hour	4.5 hour	Reffered		Low
2022-05-15	2022-08-18	########	Dinesh	Male	11	9.93E+10	2022/05/0	pali	Student	5	20:00:00	Pali	16:00:00	15 min	4 hour	Reffered		Low
2022-04-23	2022-08-18	########	Bhoma ran	Male	40	7.73E+09	2022/04/0	pali	Driverr	Illeterate	01:30:00	Pali	17:30:00	15 min	8 hour	Reffered		Low
2022-04-23	2022-08-18	########	Om prakas	Male	40	9.78E+09	2022/04/0	pali	Farmer	Illeterate	01:30:00	Pali	21:30:00	1 hour	4 hour	Reffered		Low
2022-04-21	2022-08-18	########	Shambu da	Male	65	9.65E+09	2021/05/0	jodhpur	Farmer	Illeterate	12:00:00	Judiya	10:00:00	2 hour	2 hour	self		Low
2022-04-21	2022-08-18	########	Hanwant si	Male	52	9E+09	2022/04/0	jodhpur	Stone work	Illeterate	11:30:00	Balesar	10:30:00	15 min	1 hour	Reffered		Low
2022-04-19	2022-08-18	########	Rajendra si	Male	27	9.77E+09	2022/04/0	jodhpur	Computer	Graduation	23:00:00	Shekhala vi	18:30:00	1.5 hr	4.5 hr	Reffered		Middle
2022-02-12	2022-04-12	########	Bharat kum	Male	27	9.41E+09	2022/02/0	pali	Nagarpalika	1 yr	01:15:00	Sumerpur	20:00:00	20 min	5 hour	Reffered		Low
2022-02-11	2022-08-18	########	Naina ram	Male	45	9.66E+09	2022/02/0	BARMER	Silver stone	B.A pass	23:50:00	Jodhpur	19:00:00	Half hour	5 hour	Reffered		Low
2022-02-09	2022-04-12	########	Laxman	Male	25	8.7E+09	2022/02/0	BARMER	Finance co	Graduation	23:15:00	Pachpenda	20:00:00	20 min	3hour	Reffered		Middle
2022-02-09	2022-04-12	########	Chena ram	Male	20	7.69E+09	2022/02/0	Nagaur	Farmer	Illeterate	17:00:00	Nagaur	13:00:00	1 hour	4 hour	Reffered		Low
2022-02-09	2022-04-12	########	Tika ram	Male	20	9.68E+09	2022/02/0	Jaisalmer	Studnet	11	21:00:00	Bambera ja	09:00:00	1 hour	12 hour	Reffered		Middle
2022-02-06	2022-04-12	########	Anjana son	female	40	9.98E+09	2022/02/0	pali	Housewife	8 class	18:40:00	Pali	15:45:00	25 min	3 hour	Reffered		Middle
2022-01-29	2022-04-12	########	Papu ram	Male	28	8.69E+09	2022/01/0	Nagaur	Farmer	10	20:00:00	Nagaur	13:00:00	0.5	7 hour	Reffered		Low
2022-01-29	2022-04-12	########	Chendra sh	Male	33	7.07E+09	2022/01/0	jodhpur	Factory wo	12	22:00:00	Basni jodhp	21:40:00	20 min	20 min	self		Middle
2022-01-29	2022-04-12	########	Swaroop	Male	15	9.82E+09	2022/01/0	Jaisalmer	Student	8th	20:50:00	Jaisalmer	16:30:00	20 min	4.5 hr	Reffered		Middle
2022-01-28	2022-04-12	########	Champa lal	Male	53	8.56E+09	2022/01/0	pali	Farmer	Illeterate	17:30:00	Soojat pali	15:00:00	20 min	2.5hr	Reffered		Low
2022-01-24	2022-04-12	########	Bharat	Male	15	9.95E+09	2022/01/0	BARMER	Student	8	05:20:00	At home sa	17:00:00	20 min	12 hour	Reffered		Low
2022-01-23	2022-04-12	########	Mangala ra	Male	24	9.64E+09	2022/01/0	JALORE	Farmer	12	08:00:00	Dangori jal	20:00:00	1 hour	12 hour	Reffered		Low
2022-01-23	2022-04-12	########	Kutal singh	Male	30	9.99E+09	2022/01/0	Jaisalmer	Farmer	Illeterate	21:30:00	Jaisalmer	12:30:00	2 hour	9 hour	Reffered		Low
2022-01-23	2022-04-12	########	Yogesh	Male	25		2022/01/0	pali	Student	Bsc	20:00:00	Pali	15:00:00	1 hour	5 hour	Reffered		Middle
2022-01-21	2022-04-12	########	Pankaj	Male	24	9E+09	2022/01/0	pali	Worker	Bcom pass	21:45:00	Pali road	21:00:00	45 min	45 min	Reffered		Middle
2022-01-11	2022-04-12	########	Kishor	Male	25	7.36E+09	2022/01/0	BARMER	Electrician	10 pass	05:00:00	Barmer	01:00:00	25 min	5 hour	Reffered		Low
2022-01-09	2022-04-12	########	Madal pate	Male	32	9.78E+09	2021/08/0	jodhpur	Shopkeepe	10 pass	21:30:00	Boranada	21:00:00	Half hour	Half hour	self		Middle
2022-01-08	2022-04-12	########	Birja ram	Male	30	8E+09	2022/01/0	pali	Farmer	Illeterate	22:00:00	Badiya pali	19:30:00	20 min	2 and half	Reffered		Low
2022-01-06	2022-04-12	########	Nageshwar	Male	20		2022/01/0	pali	Goverment	Illeterate	18:30:00	Pali	17:30:00	10 min	1 hour	Reffered		Low
2022-01-06	2022-04-12	########	Kutal singh	Male	30	8.88E+09	2022/01/0	Jaisalmer	Farmer	Illeterate	21:30:00	Kishangarh	12:30:00	2 hour	9 hour	Reffered		Low
2022-01-05	2022-04-12	########	Pritam sing	Male	40	7.74E+09	2022/01/0	jodhpur	Flipkart wo	Illeterate	20:25:00	Jodhpur	20:10:00	15 min	15 min	self		Middle
2022-01-05	2022-04-12	########	Luna ram	Male	35	8.62E+09	2022/01/0	BARMER	Farmer	Illeterate	05:30:00	Barmer	15:00:00	1 and half	15 hours	Reffered		Low
2022-01-04	2022-04-12	########	Munna rma	Male	35	9.55E+09	2021/01/0	jodhpur	Stone work	Illeterate	06:00:00	Jodhpur	10:00:00	1 and half	20 hour	self		Low
2022-01-01	2022-04-12	########	Manish	Male	25	7.36E+09	2022/01/0	pali	Factory wo	12 pass	03:00:00	Pal road jo	02:00:00	1 hour	1 hour	self		Middle
2021-12-21	2022-04-12	########	Ibrahim	Male	45	9.89E+09	2021/12/0	Nagaur	Labour	5 pass	14:30:00	Mundwa n	11:00:00	20 min	3 and half	Reffered		Low
2021-12-19	2022-04-12	########	Ganga ram	Male	21	9.77E+09	2021/12/0	BARMER	Worker	B a second	02:25:00	Sangad jais	19:30:00	15 min	6 hour	Reffered		Middle
2021-12-19	2022-04-12	########	Umrawa si	Male	30	8.62E+09	2021/12/0	jodhpur	Worker	6 pass	13:05:00	Jodhpur	12:45:00	20 min	20 min	self		Middle
2021-12-19	2022-04-12	########	Jabhar sing	Male	60	7.57E+09	2021/12/0	Nagaur	Farmers	Illeterate	14:40:00	Barmer	10:00:00	1 hour	4 and half	Reffered		Middle
2021-12-16	2022-04-12	########	Jagat singh	Male	52		2021/12/0	BARMER	Hotel work	10	09:15:00	Barmer	04:00:00	Half hour	5 hour	Reffered		Middle
2021-12-14	2022-04-12	########	Heera lal	Male	60	9.66E+09	2021/12/0	OTHER	Home	Illeterate	13:00:00	Chandawal	06:00:00	45 min	7 hour	Reffered		Loww
2021-12-10	2022-04-12	########	Santosh	Male	40	9.68E+09	2021/12/0	jodhpur	Housewife	Illeterate	12:30:00	Sangariya J	12:00:00	Half hour	Half hour	self		Low
2021-12-07	2022-04-12	########	Babulal	Male	60	9.83E+09	2021/12/0	BARMER	Farmer	Illeterate	20:30:00	Barmer	11:30:00	Half hour	10 hour	Reffered		Middle
2021-12-06	2022-04-12	########	Raju yadav	Male	35		2021/12/0	jodhpur	Metal facto	Graduation	13:20:00	Basni	13:00:00	20 min	20 min	self		Middle
2021-12-06	2022-04-12	########	Rakesh	Male	40	7.22E+09	2021/12/0	jodhpur	Company v	12	09:25:00	Near aiims	09:15:00	10 min	10 min	self		Middle
2021-12-03	2022-04-12	########	Rahul	Male	34	8.08E+09	2021/12/0	jodhpur	Govt serva	Graduation	12:50:00	Chb jodhpu	11:30:00	10 min	One and ha	Reffered		Middle
2021-11-30	2022-04-12	########	Punam dev	female	58	9.88E+09	2021/11/0	BARMER	Housewife	12	13:30:00	Nimaj pali	05:30:00	Half hour	8 hour	Reffered		Middle
2021-11-30	2022-04-12	########	Gopal singh	Male	20	7.08E+09	2021/11/0	pali	Student	Graduation	03:30:00	Pali	23:30:00	1 hour	4 hour	Reffered		Middle
2021-11-30	2022-04-12	########	Sonu kanw	female	30	7.08E+09	2021/11/0	jodhpur	Housewife	Ma first ye	03:30:00	Pali	23:30:00	1 hour	4 hour	Reffered		Middle
2021-11-28	2022-04-12	########	Dhalli devi	female	60	9.68E+09	2021/11/0	jodhpur	Housewife	Illeterate	10:15:00	Sanghasni j	10:15:00	1 hour 15 r	1 hour 15 r	self		Low
2021-11-26	2022-04-12	########	Rabins	Male	5	9.64E+09	2021/11/0	Jaisalmer	Student	Class 1	11:00:00	Jaisalmer	18:00:00	10 min	5 hour	Reffered		Low
2021-11-26	2022-04-12	########	Bhoma ran	Male	22	8.29E+09	2021/11/0	JALORE	Driver	10	09:00:00	Lalji dumri	17:30:00	20 min	16	Reffered		Middle
2021-11-26	2022-04-12	########	Parmesh	Male	35	7.73E+09	2021/11/0	jodhpur	Tiles worke	10	12:00:00	Sangariya	11:30:00	Half hour	Half hour	self		Middle