

# Emergency Service Management for Road Traffic Accident Patients in a Specialized Public Hospital in Dhaka

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## ABSTRACT:

**Introduction:** Road traffic accident (RTA) imposes an enormous public health burden and are a major threat to society nowadays. Emergency service has gained tremendous importance because of increasing RTA. Emergency medical service (EMS) can reduce the extent of death and disability. **Method:** This cross-sectional study aimed to assess the management of emergency service for RTA patients which covers both service receivers and service RTA patients as service receivers 50 doctors, nurses, and supporting staff as service providers were interviewed with a semi-structured questionnaire based on different variables related to emergency service management. Data were analyzed by SPSS software. Through an observational checklist, almost all the facilities in the emergency department were found available and functional according to Standard Operating Procedure (SOP) in spite of having a high doctor-patient and nurse-patient ratio. **Result:** The study revealed that out of 250 RTA patients majority 84.0% were male, the mean age was 34.8 (± 10.6) years, and the majority (84.0%) suffered from multiple injuries. It was also observed more than half (58.8%) of RTA patients waited to get emergency treatment for 2-5 minutes; where 38.4% waited for more than 5-10 minutes to get emergency treatment, almost three fourth (78.4%) got emergency medicines and the majority (83.6%) got the urgent investigation facilities from the hospital, almost all the emergency patients (89.2%) attended by a doctor within 5 minutes according to receivers found highly satisfied on overall emergency service management. **Conclusion:** Some important suggestions made by the service providers to improve the emergency service for RTA patients need to consider with proper attention by the authority.

**KEY WORDS :** emergency management, road traffic accident.

## INTRODUCTION :

Emergency medical services (EMS) are an integral part of the hospital. The emergency department (ED) is frequently thought of as a microcosm of the hospital as a whole. It is the "Front Door" of the hospital, the portal of entry that interacts with the highest volume of patients requiring critical care. ED of hospitals is often the point of major public interest and is the most vulnerable to criticism.<sup>[1]</sup> The accident and ED is a unique hospital environment, as because it is at the frontline of hospital medical patient care services. The reputation of a hospital rests to a large extent on the EMS. On the other hand, Road traffic accidents (RTA) are a 'global tragedy' with ever rising trends in fatalities and injuries in the developing countries.<sup>[2]</sup> The World Health Organization (WHO) estimates that by 2020, trauma will be a leading cause of death in both developed and developing countries. RTA form a big proportion of trauma recorded in registries.<sup>[3-4]</sup> The alarming increase in morbidity and mortality owing to RTA over the past few decades is a matter of great concern globally. Accident rates and fatalities are alarmingly higher in developing countries. Countries like Bangladesh are losing about 1-5% of annual GDP due to road accidents. Road traffic related crashes impose an enormous public health burden in our country.<sup>[5]</sup> Emergency service has gained tremendous importance because of increasing RTA, civil unrest, conflicts and industrialization. The infra structure to cope with both medical and surgical emergencies has remained under developed and

such needs priority attention to planners and policy makers. This study aimed to assess the management of emergency service for RTA patients which covers both service receivers and service providers perspective in one of the biggest specialized public hospital located in Dhaka city.

#### MATERIALS AND METHODS:

A descriptive type of cross sectional study was conducted among the RTA patients in the ED of a specialized hospital named National Institute of Traumatology and Orthopaedic Rehabilitation (NITOR) with the objective to assess the emergency service management status for RTA patients. 250 RTA patients and 50 service providers (doctors, nurses, supporting staffs) participated in this study for the duration of one year. Emergency service management status was assessed based on a pre tested semi structured questionnaire and checklist, where different emergency service related variables like waiting time, emergency medication, urgent investigation, emergency operation were included. Both service receivers (RTA patients) and service providers (doctors, nurses, supporting staffs) perspective were noted, the ratio of service providers and service receivers observed, also the problem regarding the emergency service management faced by the service providers was focused. A five point Likert scale used to determine the satisfaction of the service receivers about overall management of emergency services in five different facilities in the emergency department. Data were analyzed by using SPSS software version 21 based on the objectives of the study and data were presented by tables and figure. A written permission was taken to conduct the study from the Director of the hospital and verbal consent was taken from the respondents of the study. Confidentiality and anonymity of the respondents were maintained strictly.

#### RESULTS:

**Table 1 : Socio demographic characteristics of the RTA patients**

[N=250]		
Socio demographic characteristics	Category	N (%)
Age ( in years)	17 – 32	116 (46.4%)
	33 – 48	103 (41.2%)
	49 – 65	31 (12.4%)
	Mean (±SD) : 34.8 (±10.6) years	
Sex	Male	210 (84.0%)
	Female	40 (16.0%)
Residence	Urban	134 (53.6%)
	Suburban	48 (19.2%)
	Rural	68 (27.2%)

Table 1 reveals that the mean age of RTA patients was 34.8 (±10.6) years, majority 210 (84.0%) were male and more than half 134 (53.6%) were from urban residence.

**Table 2 : RTA related variable**  
[N=250]

	Category	N(%)
Type of injury due to RTA	Limb injury	115 (46.0)
	Head injury	15 (6.0%)
	Chest injury	15 (6.0%)
	Multiple injuries	210 (84.0%)

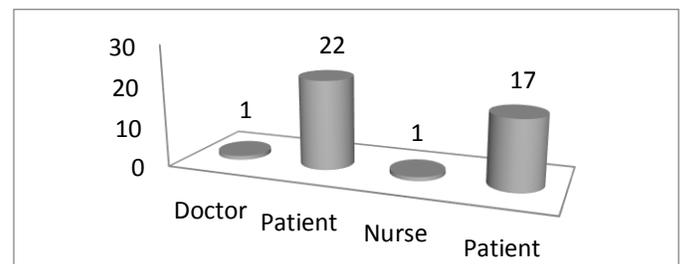
Table 2 shows that majority 210 (84.0%) RTA patients had multiple injuries, 115 (46.0%) had limb injuries, 15 (6.0%) had chest injury and 15 (6.0%) had head injury.

**Table 3 : Emergency service related variables of service providers perspective**

[N=50]		
Emergency service related variables	Category	N(%)
Problems in emergency department	Lack of manpower	44 (88.0%)
	Lack of medicine	10(20.0%)
(*Multiple response)	Lack of equipments/ facilities	33 (66.0%)
	Huge number of patients	35 (70.0%)
Operation facilities	Sufficient	14 (28.0%)
	Insufficient	36 (72.0%)
Investigation facilities	Sufficient	17 (34.0%)
	Insufficient	33 (66.0%)

Table 3 reveals that majority service providers 44 (88.0%) faced the problem of emergency department was lack of manpower, where 35 (70.0%), 33 (66.0%) faced the problem excessive patient load, lack of equipments/ facilities respectively. Moreover 36 (72.0%) service faced insufficient operation facilities and 33 (66.0%) faced insufficient investigation facilities during their service.

**Figure 1 : Ratio of doctor, patient and nurse, patient in emergency department**



From patient register it was found that on an average usually 134 patients visit in ED daily. So the ratio between doctor and patient was 1:22 where the ratio between nurse and patient was 1:17.

**Table 4 : Emergency service related variables of service receivers perspective****[N=250]**

Emergency service related variables	Category	N(%)
Waiting time to see a doctor	Just after arrived	80 (32.0)
	Within 2-5 minutes	143(57.2)
	Within 5-10 minutes	24 (9.6)
	More than 10 minutes	3 (1.2)
Waiting time to get emergency treatment	Within 2-5 minutes	147 (58.8)
	Within 5-10 minutes	96 (38.4)
	Within 10-15 minutes	7 (2.8)
Got emergency medicine from hospital	Got medicine	196 (78.4)
	Got partially or not	54 (21.6)
Urgent investigation done	Inside hospital	209 (83.6)
	Outside hospital	41 (16.4)
Emergency operation	Needed	140 (56.0)
	Not needed	110 (44.0)
Waiting time for operation	Within 15-30 minutes	37 (26.4)
	30 – 60 minutes	72 (51.4)
	More than 60minutes	31 (22.2)

Table 4 shows that more than half 143 (57.2%) patients waited 2-5 minutes to see a doctor, 147 (58.8%) patients waited 2-5 minutes to get emergency treatment, where as 96 (38.4%) waited for 5-10 minutes, almost three fourth 196 (78.4%) got emergency medicine from hospital, majority 209 (83.6%) got urgent investigation facilities from hospital, more than half 140 (56.0%) needed emergency operation and 72(51.4%) waited 30-60 minutes for operation.

**Table 5 : Respondents satisfaction regarding overall management of emergency services****[N=250]**

Satisfaction on overall management of emergency services	N(%)
Highly satisfied	149(59.6)
Moderately satisfied	100 (40.0)
Dissatisfied	1 (0.9)

Satisfaction regarding overall management of emergency service observed in five different facilities in emergency department, which are reception, treatment, waiting time, cleanliness, toilet facilities and cooperation of doctors, supporting staffs. More than half 149(59.6%) were highly satisfied regarding the overall management of emergency services.

**Table 6 : Suggestions of service receivers to improve the management of emergency service****[N=50]**

Suggestions to improve the management of emergency service	N(%)
Adequate manpower for 24 hour service	40 (80.0%)
Placing modern equipment	24 (48.0%)
Develop skill through training for doctors and supporting staffs	39 (78.0%)
Placement of right person in right position	45 (90.0%)

**\* Multiple response**

Table 6 shows 90.0% service receivers suggested to place right person in right position; other suggestions were recruiting adequate manpower for 24hours service, developing skill through training for doctors and supporting staffs, placing modern equipment made by 80.0%, 78.0%, 48.0% respectively to improve the management of emergency service.

**DISCUSSION:**

According to the study findings the mean age of RTA patients was 34.8(±10.6) years, majority (84.0%) was male and urban resident (53.6%). Due to RTA majority (84.0%) patients suffered in multiple injuries, followed by limb injury and head injury. In a study Pathak et.al<sup>[6]</sup> found soft tissue injuries were the most common type of injuries, followed by limb fracture in RTA patients. Regarding the emergency service management of RTA patients majority (88.0%) service providers faced the problem lack of manpower, followed by excessive patient load, lack of equipment / facilities, lack of medicines. Other major problems noted as insufficient operation facilities, insufficient investigation facilities 72.0%, 66.0% respectively. The ratio of doctor patient and nurse patient observed as 1: 22 and 1: 17, which is very high. It was also observed more than half (58.8%) RTA patients waited to get emergency treatment for 2-5 minutes; where as 38.4% waited for more than 5-10 minutes to get emergency treatment, almost three fourth (78.4%) got emergency medicines from hospital and majority (83.6%) got the urgent investigation facilities from hospital, almost half (51.4%) waited 30 – 60 minutes for operation, where 22.2% waited for more than 60 minutes for operation. Similar finding observed by Ahmed<sup>[7]</sup> in a study regarding waiting time to receive treatment, where 53.7% patients received treatment within 5 minutes. Waiting time to attend a doctor as well as to get emergency treatment is a very crucial factor in the management perspective. According to Standard Operating Procedure (SOP) for the emergency service management waiting time should not more than 5 minutes, that means patients should attended by a doctor immediately in the emergency department. In spite of having high doctor patient and nurse patient ratio almost all the emergency patients (89.2%) attended by a doctor within 5 minutes according to SOP which is praiseworthy. Considering the service receivers perspective regarding the overall management of emergency services it was observed that more than half (59.6%) was

highly satisfied, 40.0% and 0.9% was moderately satisfied, dissatisfied respectively; even though there exists high service providers receivers ratio and other constrains in the emergency department a negligible portion was dissatisfied regarding the overall management of emergency services. But Khan et al.<sup>[8]</sup> showed in their study on management of emergency services based on different facilities, a majority 91.4% patients were satisfied with overall management of the emergency department.

Through direct observation checklist it was found that according to SOP for emergency services all physical facilities were available and functional, transport facilities were available but not sufficient, regarding diagnostic facilities only X-ray facility for emergency patients were available round the clock. However pathological facilities, ECG, ultrasonography, MRI and CT scan facilities were not present in the emergency department, but insufficiently available in the hospital. Doctor patient and nurse patient ratio were very high. The findings from direct observation checklist were quite close to the scenario of emergency department of Dhaka Medical College, which showed in a study conducted by Ferdous et al.<sup>[9]</sup>

#### CONCLUSION:

Present study concludes that the management status of emergency service of RTA patients in NITOR was satisfactory considering to the SOP. In spite of having resource constraint and high service providers, service receivers ratio majority patients found satisfied regarding the overall management of emergency services. Some important suggestions made by the service providers to improve emergency service for RTA patients which need to consider with proper attention by the authority. This study may enrich the planners, policy makers, managers and service providers to take positive measure to improve the management of EMS for RTA patients as well as other emergency patients in the hospital.

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