



# Emergency Care During the Transferal of Patients with Traumatic Brain Injury to Designated Trauma Center

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## Introduction

- Traumatic brain injury (TBI) is a global problem.
- It is a major and increasing problem in Thailand.
- Specific challenges face emergency medical service personnel who play a major role in the delivery of immediate care to patients with moderate and severe TBI.
- Little is known about the emergency care of patients with moderate and severe TBI in pre-hospital care in the Thai context, particularly during transferal of patients to the designated trauma center.
- Also, the clinical outcome of patients with moderate and severe TBI on their arrival of the designated trauma center is unknown.
- Thus, there is a need to evaluate care during the transferal of patients with moderate and severe TBI to the designated trauma center by Thai EMS personnel.

## Aims of the study

- To evaluate care during the transferal of patients with moderate and severe TBI to the designated trauma center by Thai EMS personnel, and
- To examine clinical outcomes of patients with moderate and severe TBI on their arrival of the trauma center.

## Methods

- A retrospective study was used to collect the data.
- Audits of patients' medical and nursing records were conducted.
- Ethical approval for this study was obtained from Faculty of Nursing and the hospital ethics committee at the study site.
- A primary survey was used as a framework to evaluate care during the transferal of patients with moderate and severe TBI to the designated trauma center.
- Descriptive statistics was used to analyze the data.

## Results

- Emergency care during the transferal of patients with traumatic brain injury to designated trauma center was evaluated in 201 cases during a four-month period.
- Of the 201 patients, 83.58% were males.
- Approximately 82% had been involved in motor vehicle accidents.
- Most (72.14%) were transferred from smaller hospitals and the accident sites by ALS personnel, while 27.86% were brought directly from the accident sites to the emergency department of the trauma center (21.89% by BLS and 3.98% by FR personnel, and 1.99% by relatives or strangers who have accidentally seen the event).

**Table 1 Emergency care during the transferal of patients with TBI to designated trauma center**

Emergency care	Performed n(%)	Performed inadequately n(%)	Not performed n(%)
Airway (N=201)	119(59.20%)	55(27.36%)	27(13.44%)
Oxygen (N=201)	131(65.17%)	32(15.92%)	38(18.91%)
Collar (N=201)	115(57.21%)	30(14.93%)	56(27.86%)
IV fluid (N=201)	146(72.64%)	34(16.91%)	21(10.45%)
Bleeding control (N=137)	102(74.46%)	10(7.30%)	25(12.44%)
Limb fractured splinted (N=64)	35(54.69%)	13(20.31%)	16(25.00%)
Urinary cath. (N=167)	92(55.09%)	-	75(44.91%)

**Table 2 Clinical outcomes of patients on their arrival of the trauma center (N=201)**

Clinical outcomes	n(%)
Systolic BP ≥ 90 mmHg	135(67.16%)
Oxygen saturation ≥ 95%	161(80.10%)
Pulse rate 60-120 /min	177(88.06%)
Respiratory rate 12-20 /min	159(79.10%)
A GCS scores	
13-15	17(8.46%)
9-12	128(64.18%)
3-8	56(27.86%)

## Conclusion

- The present study revealed that there are important aspects of care required for improvement in emergency care delivered to patients with moderate and severe TBI during the transfer to the designated trauma center by Thai EMS personnel.
- Therefore, there is a need for EMS personnel to increase their education and knowledge, and then to maintain and update their knowledge related to emergency care for patients with TBI.

