Prehospital Care For Road Traffic Injuries
Sharing Experiences from Bangladesh

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Road traffic injuries: the global scenario

• World’s first road traffic death was recorded in 1896;

• Even, after more than a century – road traffic injuries kill around 1.25 million people while up to 50 million people incur nonfatal injuries each year as a result of road traffic crashes; and

• It is predicted that road traffic injuries would become the seventh leading cause of death by 2030 if appropriate measures are taken to prevent.
How quick the road traffic crash victims be resuscitated

• The ‘golden hour’ is term often used in trauma to suggest that an injured patient has 60 minutes from time of injury to receive definitive care, after which morbidity and mortality significantly increase...... THUS, the injured victim/s should receive definite care within 60 minutes following the incident.
• There is an analogous concept like “Golden Hour” –

The “**platinum 10 minutes**”, which places a time constraint on the pre-hospital care of seriously injured patients: no patient should have more than 10 min of scene-time stabilization by the prehospital team prior to transport to definitive care at a trauma center.
Why do we need prehospital care?

• Pre-hospital care developed as a specialty to minimize the injury consequences before the definitive care is made available.
The prehospital care and Bangladesh context: a case study

On January 22, 2016 a man was badly injured by road crash and a social entrepreneur named Saif Kamal took him in his car and tried at least in 3 hospitals to save him. However, all of them rejected him. Saif Kamal was suggested by all of them including police to go to Dhaka Medical College Hospital (DMCH). It's been 3 hours and the injured man died in his car while moving to DMCH. Then he posted a long Facebook status "A MAN DIED IN MY CAR and I have some questions to the nation and to myself"
Road traffic injuries in Bangladesh: the need for prehospital trauma care

- Road traffic injuries (RTI) are the 2nd leading cause of injury mortality.
- An estimated, 24,147 people die due to RTI in Bangladesh every year i.e. 66 deaths per day.

Source: Bangladesh Health and Injury Survey 2016.

Figure 1: Type-specific injury mortality rates, all ages

Contd....
• RTI are the 2nd leading cause of injury related permanent disability with an estimated 80,448 permanent disability per year.

• RTI are significantly higher among males especially those in the productive age group.

Source: Bangladesh Health and Injury Survey 2016.
Almost two-thirds of all road traffic crash victims died on the way to hospital.

**Source:** Bangladesh Health and Injury Survey 2016.

**Figure 3:** Distribution of road traffic mortality by place of death

*Contd....*
Around three quarters of all patients die due to road traffic crashes do not receive any prehospital care service.

Source: Bangladesh Health and Injury Survey 2016.

Figure 4: Distribution of road traffic mortality by prehospital care service received

Contd....
• 100% of RTI victims died at home didn’t receive any prehospital care service.
• 75% of RTI victims who died one the way to hospital didn’t receive prehospital care.

Source: Bangladesh Health and Injury Survey 2016.
Table 1: Hospital admission and deaths due to RTI, 2015

<table>
<thead>
<tr>
<th>Hospital Type</th>
<th>Admission</th>
<th>Deaths</th>
<th>Ranking of Admission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical College Hospitals (14)</td>
<td>66,788</td>
<td>3,663</td>
<td>1 (5.2%)</td>
</tr>
<tr>
<td>District Level Hospitals (62)</td>
<td>58,235</td>
<td>563</td>
<td>4 (3.5%)</td>
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<tr>
<td>Upazila Health Complexes (408)</td>
<td>50,842</td>
<td>214</td>
<td>5 (2.3%)</td>
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<td><strong>Total</strong></td>
<td><strong>175,865</strong></td>
<td><strong>4,440</strong></td>
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Source: Health Bulletin 2015, DGHS
Thus, there is an urgent need to develop prehospital care system in Bangladesh
What we have done

Development of community volunteers:

• Centre for Injury Prevention and Research, Bangladesh (CIPRB) trained community volunteers to attend road traffic crash victims immediate after the incident under a comprehensive pilot project on road safety which was implemented on a national highway under Public Private Partnership (PPP) between 2013 to 2016.

Contd....
Training of the community volunteers
Feasibility of conducting first response and CPR training in a low literacy setting
• More than 2000 community volunteers were trained on first aid and they are:
  o School teacher
  o Community Injury Prevention Promoters,
  o Community Swimming Instructors and
  o Crèche Mothers
Training manual and materials development (first responder system):

- CIPRB developed training manuals and materials on first responder system through –
  - Reviewing existing literatures and manuals; and
  - Conducting series of workshops involving emergency medicine specialists, anesthetists and orthopedic surgeons.
Training logistics of CIPRB for first responder system

- Manual
- Manikins
Other organizations involved with prehospital care system in Bangladesh

- Bangladesh Fire Services and Civil Defense
- Disaster Management Bureau
- Accident Research Institute
- BRAC
- CRP (Centre for Rehabilitation of Paralyzed)

- Red Crescent Society
- Bangladesh Scouts
- Nirapod Sharak Chai
- CritiLink
- Traumalink *(We have an official MoU with Traumalink as technical and research partner)*
CIPRB and TraumaLink’s collaborative efforts on pre-hospital trauma care for the road traffic crash victims

- Successfully completed a pilot project in Daudkandi upazila of Comilla district on a 15 km stretch of the Dhaka-Chittagong Highway. Planned to expand the services to another 5 km in June 2017;

- Increase coverage to another 100 km of highway over the next year on the Dhaka-Chittagong Highway; and

- Starting a new project on the Dhaka-Aricha Highway along with other partners (CRP).

Contd....
How CIPRB and Traumalink’s prehospital care system operates
Field activities of TraumaLink and CIPRB
The service model with Traumalink utilizes an emergency hotline number, a 24/7 call center and volunteer first responders recruited from local community and trained in basic trauma first aid.

Vision

“BIPODEY AMRA”
A Self–Sustaining Model to Reduce the Burden of Road Traffic Injuries in Bangladesh

Contd....
Achievements of the pilot project

- Trained Over 100 volunteers
- Responded to 257 incidents
- Responded to 100% of calls with most response times less than 5 minutes
- 18.6 kilometers coverage area in Daudkandi
- 416 victims received our service

2 May 2017
Initiatives of the government of Bangladesh to establishment of prehospital trauma care system for RTI victims
Objective 1: Improving pre-hospital care of RTI victims

Target: 50% of crash victim will receive pre-hospital care from trained personnel within 15 minutes of crash happened.

<table>
<thead>
<tr>
<th>Plan</th>
<th>Activities</th>
<th>Time frame</th>
<th>Core agency</th>
<th>Coordinating agency</th>
<th>Remarks</th>
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</thead>
<tbody>
<tr>
<td>Establish a nationwide emergency response system</td>
<td>Establish national level call centre</td>
<td>2016-2020</td>
<td>DGHS, MOH&amp;FW</td>
<td>MOH&amp;FW</td>
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<td>Introduce a toll-free telephone number for medical emergencies</td>
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<td>Provide the public with information on how to access emergency services</td>
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<td>and tips at the scene of a crash</td>
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### Objective 1: Improving pre-hospital care of RTI victims

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<td>Establish a nationwide emergency response system</td>
<td>Training the first responders involving - police, security personnel, students, auto drivers, medicine shop keepers, personnel working in the fuel station etc.</td>
<td>2016-2020</td>
<td>DGHS</td>
<td>MOH&amp;FW</td>
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<td>Set up a network of ambulance services along the major highways, urban and rural roads.</td>
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## Objective 1: Improving pre-hospital care of RTI victims

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| Establish national regulatory mechanism for emergency response services | Develop a national ambulance policy with:  
- Directives for response to post-crash victims  
- Measures to improve the response time. | 2016-2020 | DGHS MOH&FW | MOH&FW |         |
| Establishing rescue centre | Set up of rescue centres and integrating with the emergency response system. | 2016-2020 | DGHS MOH&FW Fire Brigade | MOH&FW |         |
|                               | Equip the rescue centers with communication systems & mobilise all necessary resources | | | |         |
Challenges in establishing prehospital trauma care system in resource constraint setting like Bangladesh

- Lack of comprehensive emergency response system to assist road crash victim;
- Data constraints on response time to the post-crash victims;
- Limited number of ambulances;
- Poor communication system for providing assistance to road crash victims including non-existence of universal access toll free telephone number;
- Scene management of the crash and in evacuation of casualties does not exist; and
- Inefficient assistance to road crash victims due to lack of skilled personnel and equipment.
Thus, it is our responsibility to develop a feasible and effective demonstration project on prehospital trauma care system to advocate with the policy makers

The main features of the demonstration project should be –

• It should be designed to promote the core values of simplicity, sustainability, practicality, efficiency and flexibility;

• Local factors and resources should be taken into account in designing the prehospital trauma care system for a particular location;

• Intersectoral cooperation should be ensured, because prehospital trauma care involves public safety as well as public health;

Contd....
• The project should have system to refer all serious patients especially traumatic brain injury patients including other passengers/drivers involved in the same crash to the nearby health facilities for screening and further management.
Take home message

A concerted efforts including both financial and technical support from the global road safety community is solicited to minimize the consequences of road traffic injuries by provision of timely prehospital care.
For further information

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Thank You!