

Post-impact care Summary

2016



What is the problem?

During 2015 there were around 26.500 road deaths in the European Union. The Commission estimates that 135.000 people were seriously injured; serious injuries are not only more common, but also often more costly to society because of long-time rehabilitation and healthcare needs. The timely and appropriate post-impact care of road accident victims is a crucial determinant of the chance and quality of survival. The faster and the more effectively an injured person is treated medically, the greater are the chances of surviving and making a full recovery.

Improving post-impact care is a key strategy promoted by the World Report on Road Traffic Injury Prevention (2004) and is a Pillar of Action in the UN Global Plan for the Decade of Action.

How big is the problem?

- In Europe it is estimated that for every death, there are 4 permanently disabling injuries such as to the brain or spinal cord, 10 serious injuries and 40 minor injuries.
- The annual value of prevention (rehabilitation, healthcare, material damages, etc.) of road fatalities and injuries in Europe is estimated to be of at least €100 billion. Research indicates that 50% of the total social costs of road accidents in high, middle and low-income countries relate to injuries. However, the long-term impacts of transport-related injuries within the EU are to a large extent unknown.

What does science say?

Benefits and costs of post-impact care

Studies show that significant reductions in preventable deaths can be achieved through improvements in the trauma care system. Panel reviews indicate an average reduction of 50% in medically preventable deaths and population-based studies and trauma registry studies show around a 15%-20% reduction in mortality as a result of trauma care improvements. Costs per life saved and per life-year saved are very low compared with other comparable medical interventions.

Time between road accident and road death

A study by medical experts in European high-income countries found that about 50% of deaths from road traffic accidents occurred within minutes, either at the scene or while in transit to hospital. For those patients taken to hospital, around 15% of deaths occurred within 1-4 hours after the accident, but around 35% occurred after 4 hours.

Emergency Response Time and risk of death

It has been estimated that severely injured accident occupants who receive care at a Level I trauma centre within 1 hour have a 25% reduction in risk of death. A Spanish study concluded that reducing the time between accident occurrence and arrival of emergency medical services from 25 to 15 minutes could reduce deaths by one third.

What are the solutions?

For major injuries, clinical experts define the post-impact care needed as the chain of help starting with action taken by the victims themselves or more commonly by lay bystanders at the scene of the accident, access to the pre-hospital medical care system, emergency rescue, pre-hospital medical care, trauma care and helping road accident victims who have suffered debilitating injury to re-integrate into work and family life.

The role of lay bystanders

- EC Directive 2000/56 provides for the requirement of first aid training and refresher courses for professional drivers.
- There is no strong evidence that basic first aid training either of professional drivers or of all drivers and general public would decrease pre-hospital mortality.

Access to the emergency medical system

- Emergency notification number (112) has now been implemented in all EU countries.
- Automatic Crash Notification (eCall), communicating the vehicle's exact location to emergency services, the time of incident and the direction of travel in the event of an accident, will be mandatorily fitted to all new EU-registered cars from April 2018.
- An efficient emergency medical dispatch system should comprise the following element: use of a standard protocol, medical supervision, audit of operations and proper training of dispatchers.

Emergency rescue systems

- Close cooperation at the scene is required between fire-fighters, coastguards and police (who may arrive first at the scene) and the emergency medical service personnel.
- Non-medical emergency services need to be trained in basic life support in order to provide immediate first aid.
- The availability and response time of ambulances is essential. This is a particular issue in rural areas, where pre-hospital times are substantially longer compared to urban accidents.

Pre-hospital medical care

- Scientific knowledge about the efficacy of pre-hospital medical care techniques is still evolving. Only essential treatment should be given, so that there is no unnecessary waste of time.

Trauma care

- The infrastructure of a trauma care system includes eight key elements: leadership, professional resources, education and advocacy, information, finances, research, technology, and disaster preparedness & response.
- The creation of a multi-disciplinary trauma team and the appointment of a trauma team leader is required by the in-hospital trauma service.
- Greater attention is needed worldwide to define and optimize the training of doctors and nurses in trauma care.

Rehabilitation

- Rehabilitation involves the integration of initial 'high tech' medicine and rehabilitation services and attention to the psychological needs of the patient.
- Training is required for staff caring for patients as well as supporting relatives.

Data and information systems

- The collection and documentation of data on injury consequences and phases of post-impact care are essential to identify priority areas, monitor progress and check that investments are being appropriately directed.

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- Safety performance indicators have been recommended for monitoring both pre-hospital care and hospital trauma care.

Notes

1. Country abbreviations

| | | | | | | | | |
|-----------------------------------------------------------------------------------|----------------|----|-----------------------------------------------------------------------------------|-------------|----|------------------------------------------------------------------------------------|----------------|----|
|  | Belgium | BE |  | Italy | IT |  | Romania | RO |
|  | Bulgaria | BG |  | Cyprus | CY |  | Slovenia | SI |
|  | Czech Republic | CZ |  | Latvia | LV |  | Slovakia | SK |
|  | Denmark | DK |  | Lithuania | LT |  | Finland | FI |
|  | Germany | DE |  | Luxembourg | LU |  | Sweden | SE |
|  | Estonia | EE |  | Hungary | HU |  | United Kingdom | UK |
|  | Ireland | IE |  | Malta | MT | | | |
|  | Greece | EL |  | Netherlands | NL |  | Iceland | IS |
|  | Spain | ES |  | Austria | AT |  | Liechtenstein | LI |
|  | France | FR |  | Poland | PL |  | Norway | NO |
|  | Croatia | HR |  | Portugal | PT |  | Switzerland | CH |

2. This 2016 edition of Traffic Safety Synthesis on Post-impact Care updates the previous versions produced within the EU co-funded research projects [SafetyNet](#) (2008) and [DaCoTA](#) (2012). This Synthesis on Post-impact Care was originally written in 2008 and then updated in 2012 and in 2016 by Jeanne Breen, [Jeanne Breen Consulting](#).

3. All Traffic Safety Syntheses of the European Road Safety Observatory have been peer reviewed by the Scientific Editorial Board composed by: George Yannis, NTUA (chair), Robert Bauer, KFV, Christophe Nicodème, ERF, Klaus Machata, KFV, Eleonora Papadimitriou, NTUA, Pete Thomas, Un.Loughborough.

4. Disclaimer

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5. Please refer to this Report as follows:

European Commission, Post-impact Care, European Commission, Directorate General for Transport, October 2016.

