

16. Traffic safety pillars: post-crash care

Introduction

Road traffic crashes kill approximately 1.19 million people each year. Many of these deaths are preventable through prompt and effective trauma care after the crash. In low- and middle-income countries, where over 90% of traffic fatalities occur, post-crash care systems are often the weakest link in the Safe System chain. Emergency medical services may be absent or severely under-resourced, and ambulance response times can exceed one hour. During this critical period, bystanders and lay responders are frequently the only source of immediate care.

This module provides an overview of post-crash care essentials for lay first responders. It covers the trauma care chain from crash scene to hospital, including the basics of managing critical injuries using internationally recognised primary and secondary assessments. Understanding these essentials allows anyone to contribute to the chain of survival, where each link, from bystander first aid to advanced medical care, plays a vital role in improving an injured person's chances of survival.

Learning outcomes

After completing this module, the students should be able to:

- describe the importance of timely post-crash care and outline the trauma care chain of survival from crash scene to hospital
- identify the steps of the primary survey (ABCDE) and explain the priority of each step in initial trauma assessment
- apply basic first aid interventions for critical post-crash injuries, such as maintaining an airway, controlling bleeding, and stabilising fractures
- analyse the differences between the primary survey (immediate life threats) and the secondary survey (thorough head-to-toe examination)
- evaluate the special considerations required when providing post-crash care to vulnerable population groups, especially children, including differences in anatomy and response to injury.

Key messages to learners

- The first action at any crash scene is to ensure that you, the victim/s and other bystanders are safe (especially from secondary collisions with passing vehicles), then to immediately call for help from emergency services. Early activation of professional help is critical. Bystanders are the first link in the trauma care chain.
- Effective post-crash care unfolds in stages: bystander first aid, emergency medical services (EMS) response, advanced hospital care (trauma centre treatment), and rehabilitation. Each link is essential, if any link is weak or delayed, survival chances drop significantly. The ‘golden hour’ after injury is the critical window in which rapid intervention most improves outcomes.
- The ABCDE primary survey is the internationally recognised framework for assessing life-threatening injuries in order of priority: A (Airway with cervical spine protection), B (Breathing), C (Circulation and bleeding control), D (Disability/neurological status), and E

(Exposure and environment). Life-threatening problems are addressed immediately, as found, before moving to the next step.

- After the ABCDE primary survey, a secondary head-to-toe examination is performed once the patient is stabilised to identify any injuries that may have been missed during the primary survey. The AMPLE mnemonic (Allergies, Medications, Past illnesses, Last meal, Events) is recommended in the case of trauma victims to rapidly gather relevant history and to ensure that no injuries are missed.
- Critical injury management priorities include: opening the airway using head-tilt/chin-lift (or jaw-thrust if spinal injury is suspected); controlling severe bleeding with firm direct pressure; recognising and managing shock (including laying the victim flat, elevating the legs if no spinal injury, and keeping the patient warm); not removing impaled objects but stabilising them in place; and assuming spinal injury in any high-impact crash, immobilising the head and neck.
- Children are not small adults. Their airways are smaller and more easily blocked. In addition, their flexible ribs may hide serious internal injuries. They have less blood volume, so even small amounts of bleeding can be critical. As a result, they compensate well initially but can deteriorate suddenly. Always seek medical help for an injured child, even if they appear fine.
- In many LMIC contexts, formal emergency services are limited. Lay responders play a disproportionately large and important role in saving lives, particularly in remote and difficult to access areas. Basic first aid training should be an integral part of driver education, and establishing networks of trained community first responders can extend survival time until professional help arrives.
- Post-crash care extends beyond immediate first aid and hospital care. It encompasses rehabilitation, psychological support, legal assistance, and help with reintegration, particularly when the consequences of a crash have significantly altered the victim's life.

Learning activities

Exercise 1

Write down each letter of the ABCDE primary survey and describe in your own words what it stands for and one key action you would take for that step. Then explain why the sequence matters: what would happen if you addressed Circulation before checking the Airway?

Exercise 2

You arrive at a crash scene as a bystander. There are two injured people: Person A is unconscious and not responding. Person B is awake but bleeding heavily from a deep leg wound. Describe the first three things you do, in order, and explain your reasoning. Which patient do you attend to first, and how do you address Airway, Breathing, and Circulation priorities across both patients?

Exercise 3

A 6-year-old child was involved in a collision while cycling. The child has scrapes and bruises and is crying loudly. List the steps you will take to assess and comfort the child. What differences do you consider compared to an adult casualty? How will you check their ABCDEs, communicate with them, and prevent hypothermia or shock?

Assessment quiz

The assessment quiz can be used as part of the examination or as an additional learning activity.

Question 1

What does each letter of the ABCDE primary survey stand for?

- A = Airway, B = Breathing, C = Circulation, D = Disability, E = Exposure (**correct**)
- A = Assessment, B = Bandaging, C = Compression, D = Defibrillation, E = Evacuation (**incorrect**)
- A = Ambulance, B = Blood, C = Care, D = Diagnosis, E = Emergency (**incorrect**)

Comment (shown after the answer has been given):

The ABCDE approach prioritises the most critical threats to life in sequence. Airway must be secured first (you cannot breathe without an open airway), then Breathing, then Circulation (bleeding control), then Disability (neurological status), then Exposure (check for hidden injuries while preventing hypothermia).

Question 2

What are the first two actions you should take when arriving at a crash scene?

- Check that the scene is safe, then call emergency services (**correct**)
- Begin CPR immediately, then look for other victims (**incorrect**)
- Move all victims away from the road, then check for injuries (**incorrect**)

Comment (shown after the answer has been given):

Scene safety prevents you from becoming a victim yourself. Calling emergency services early ensures professional help is dispatched while you provide first aid. Rushing to treat without securing the scene or calling for backup can delay the overall response and put you at risk.

Question 3

You find a piece of metal impaled in a crash victim's thigh. What should you do?

- Remove the object quickly to stop the bleeding (**incorrect**)
- Leave the object in place and stabilise it with padding (**correct**)
- Push the object further in to prevent it from moving (**incorrect**)

Comment (shown after the answer has been given):

Removing an impaled object can cause severe bleeding because the object may be plugging the wound. Instead, stabilise it by packing padding around the object and securing it in place. This prevents further movement and injury until emergency services can treat it properly at the hospital.

Question 4

Which of the following is a key difference when providing first aid to a child compared to an adult?

- Children always have visible injuries, making assessment easier (**incorrect**)
- Children can have serious internal injuries without obvious external signs because their bones are more flexible (**correct**)
- Children do not go into shock after blood loss (**incorrect**)

Comment (shown after the answer has been given):

Children's bones are more flexible, which means they may sustain serious internal organ injuries without external fracture signs. Children also have less blood volume, so even small amounts of

bleeding can be life-threatening. They compensate well initially (maintaining blood pressure) but can deteriorate suddenly, making vigilant monitoring essential.

Question 5

Why is bystander first aid particularly important in low- and middle-income countries?

- Because LMICs have more doctors per capita than high-income countries (**incorrect**)
- Because emergency medical services are often limited or absent, and ambulance response times can exceed one hour, making lay responders the only source of immediate care during the critical golden hour (**correct**)
- Because traffic crashes are less severe in LMICs (**incorrect**)

Comment (shown after the answer has been given):

In many LMICs, formal emergency medical services are severely under-resourced. Ambulance response times can exceed one hour, and in some areas no EMS exists at all. During this critical period, bystanders with basic first aid knowledge are the only link in the chain of survival. This is why first aid training should be integrated into driver education and community health programmes in these settings.

Recommended reading and resources for students

- Bagherzadeh, M. (2022). *Approach to the trauma patient – ABCDE of trauma care*. International Emergency Medicine Education Project. <https://iem-student.org/2022/01/19/abcde-of-trauma-care/>
- WHO. (2005). *Prehospital trauma care systems*. World Health Organization. <https://www.who.int/publications/i/item/prehospital-trauma-care-systems>
- WHO. (2016). *Post-crash response: supporting those affected by road traffic crashes*. World Health Organization. <https://apps.who.int/iris/rest/bitstreams/1067886/retrieve>

Recommended (additional) reading for teacher

- Jayaraman, S., Mabweijano, J. R., Lipnick, M. S., Caldwell, N., Miyamoto, J., Wangoda, R., Mijumbi, C., Hsia, R., Dicker, R., & Ozgediz, D. (2009). First things first: effectiveness and scalability of a basic prehospital trauma care program for lay first-responders in Kampala, Uganda. *Plos One*, 4(9), e6955. <https://doi.org/10.1371/journal.pone.0006955>
- Kobusingye, O. C., Hyder, A. A., Bishai, D., Hicks, E. R., Mock, C., & Joshipura, M. (2005). Emergency medical systems in low- and middle-income countries: recommendations for action. *Bulletin of the World Health Organization*, 83(8), 626–631. <https://pubmed.ncbi.nlm.nih.gov/16184282/>
- Tiska, M. A., Adu-Ampofo, M., Boakye, G., Tuuli, L., & Mock, C. N. A model of prehospital trauma training for lay persons devised in Africa. *Emergency Medicine Journal*, 21(2), 237–239. <https://doi.org/10.1136/emj.2002.002097>

Prepared by experts

If you have specific questions, need a discussion partner, or would like feedback on your lecture materials, you may contact the authors of this module. Please include ‘AfroSAFE curriculum’ in the email subject line.



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