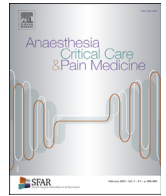




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Guidelines

Prehospital trauma flowcharts – Concise and visual cognitive aids for prehospital trauma management from the French Society of Emergency Medicine (SFMU) and the French Society of Anaesthesia and Intensive Care Medicine (SFAR)



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 Mass Casualty

Summary

The present corpus of cognitive aids (CA) for trauma management, *trauma flowcharts*, provides comprehensive and visual guidelines for trauma clinicians for the prehospital setting. These flowcharts are structured along a timeline and all essential action carry a specific time stamp. The flowcharts aspire to be an easy-to-use real-time support for clinicians, as well as to be used as a reference for training and education. The flowcharts are the result of a close cooperation of the French Society of Emergency Medicine (Société française de médecine d'urgence, SFMU) and the French

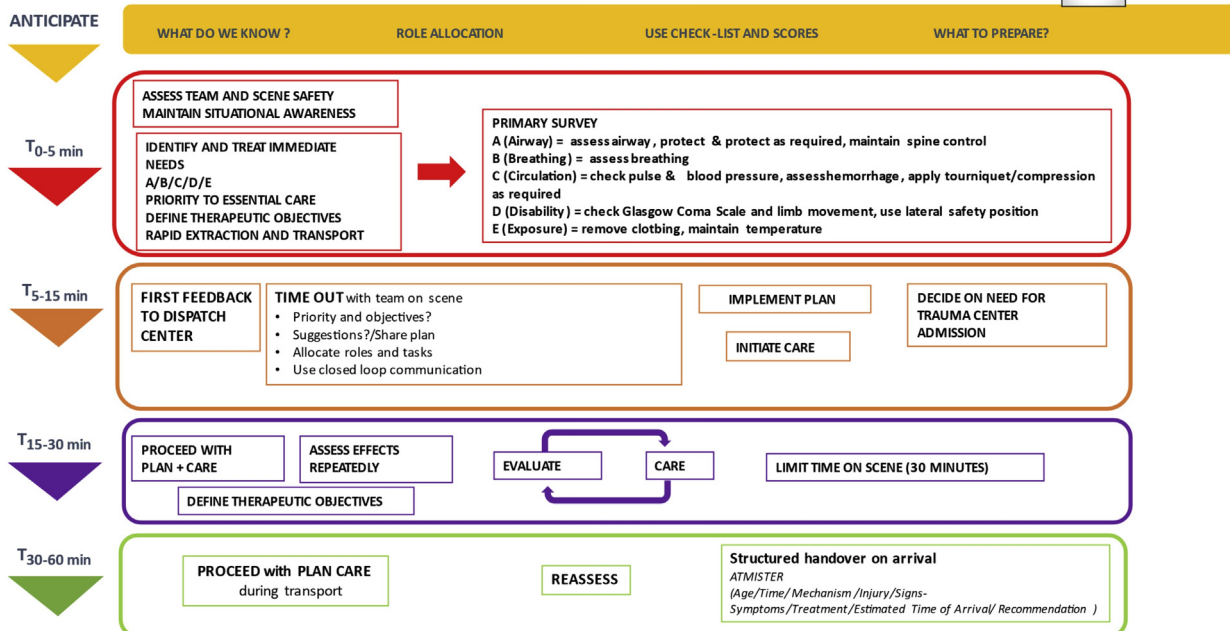
Society of Anaesthesia and Intensive Care Medicine (Société française d'anesthésie et de réanimation, SFAR).

The flowcharts cover the following topics:
 Prehospital Trauma Management Principles

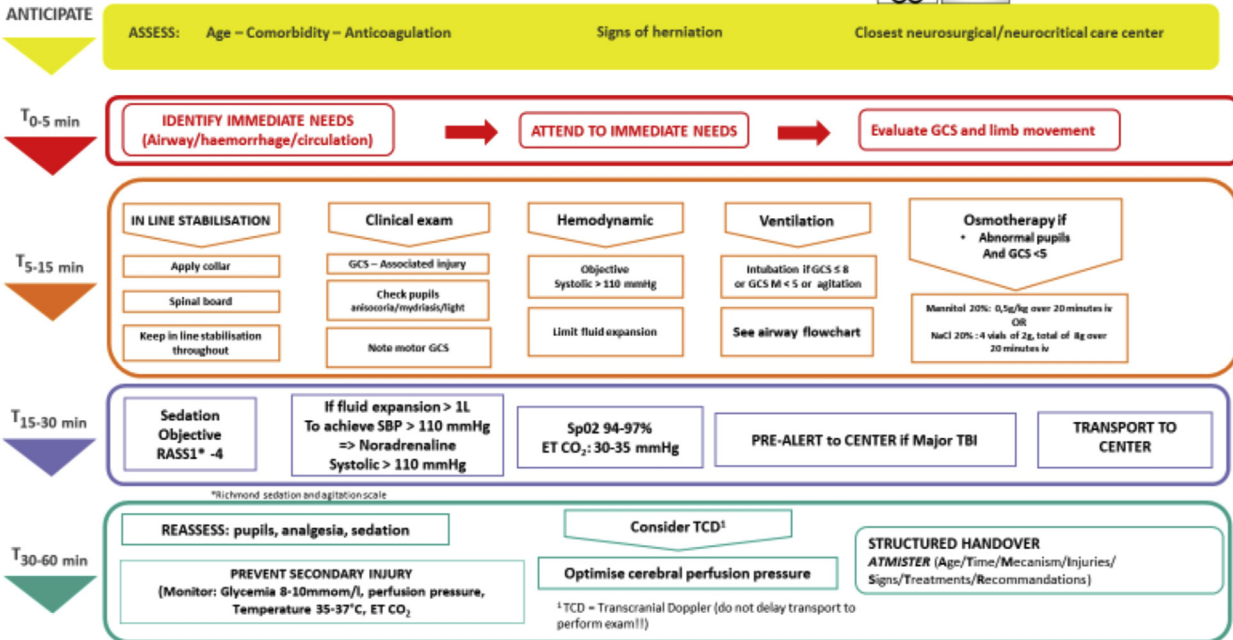
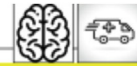
- 1) Traumatic Brain Injury
- 2) Thoracic Trauma/Respiratory Failure
- 3) Abdominal Trauma
- 4) Pelvic Trauma
- 5) Extremity/Vascular Injury
- 6) Damage Control/Shock
- 7) Sedation/Analgesia
- 8) Airway Management and Rapid Sequence Induction
- 9) Traumatic Cardiac Arrest
- 10) Mass Casualty Individual Care

The flowcharts were developed according to a specific methodology. Every flowchart was composed by two collaborators along a pre-established template and existing clinical guidelines [5–11]. All flowcharts underwent peer review from a panel of 42 experts from SFAR and the SFMU. After extensive review, the entire panel of experts voted on the entire corpus of flowcharts. The vote was performed according to a scale from 1 to 9 (1–3 = no agreement; 4–6 = indetermined, new vote; 7–9 = strong agreement). A flowchart was approved, if more than 75% of panel members expressed a strong agreement (7–9). The final version was reviewed and validated by the clinical guideline committee of the SFMU. An electronic, interactive smartphone-based application is available in French language (<https://sfar.org/lappli-des-anesthesistes-reanimateurs>).

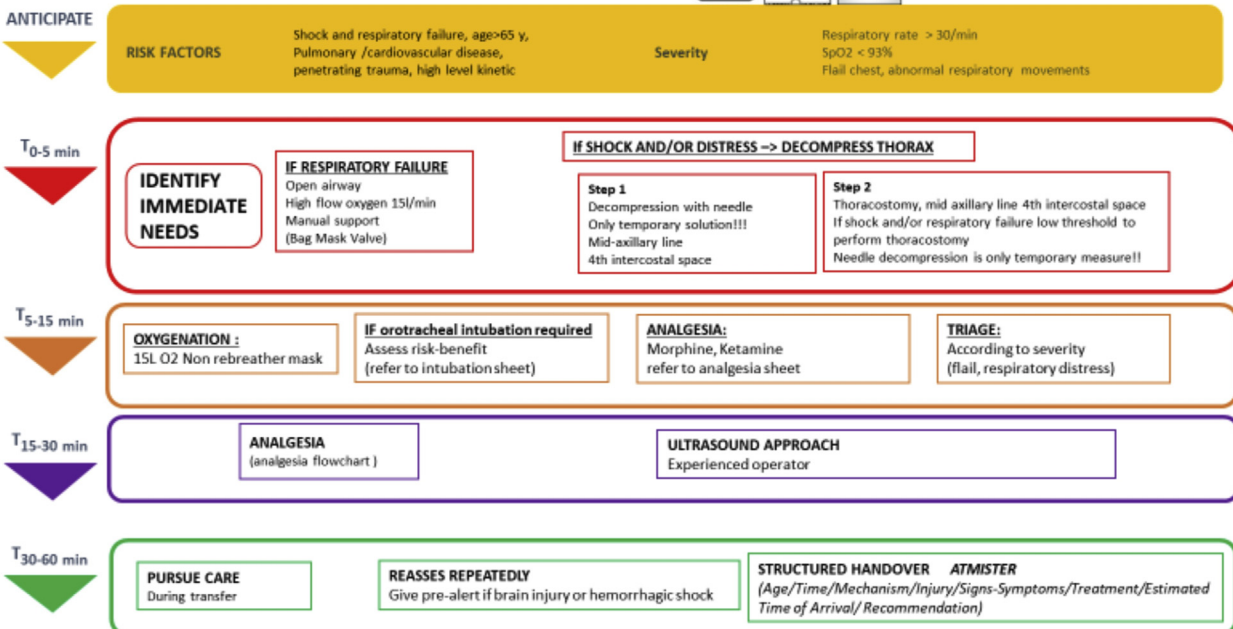
TRAUMA MANAGEMENT PRINCIPLES- PREHOSPITAL



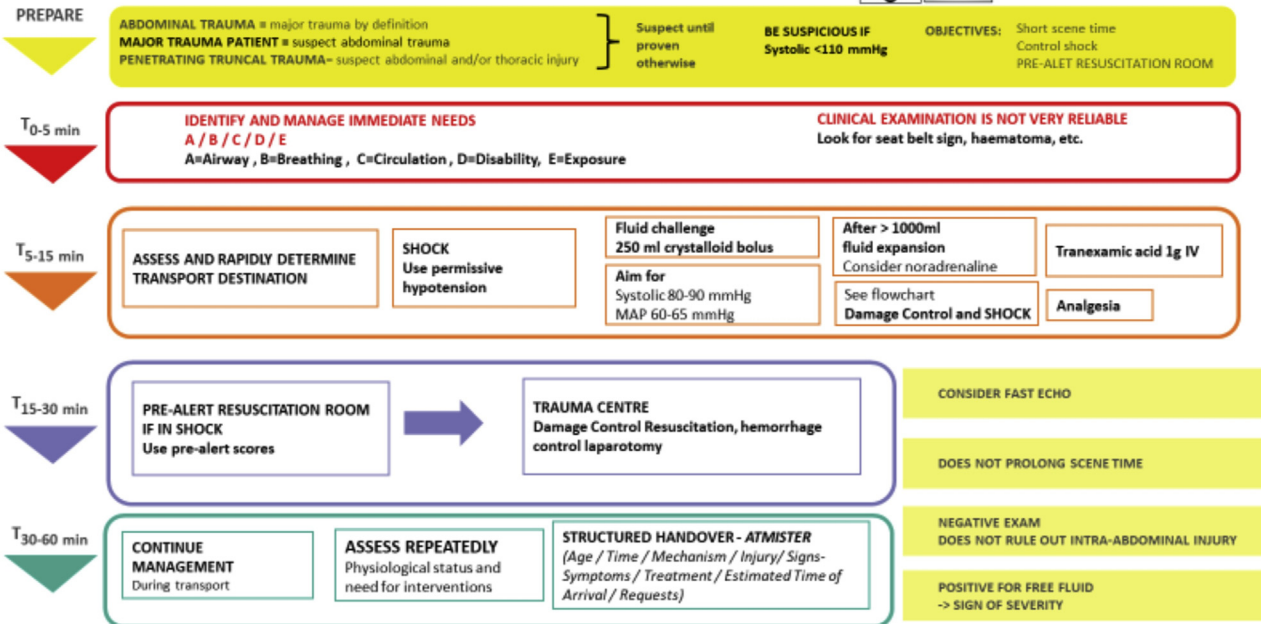
TRAUMATIC BRAIN INJURY - PREHOSPITAL



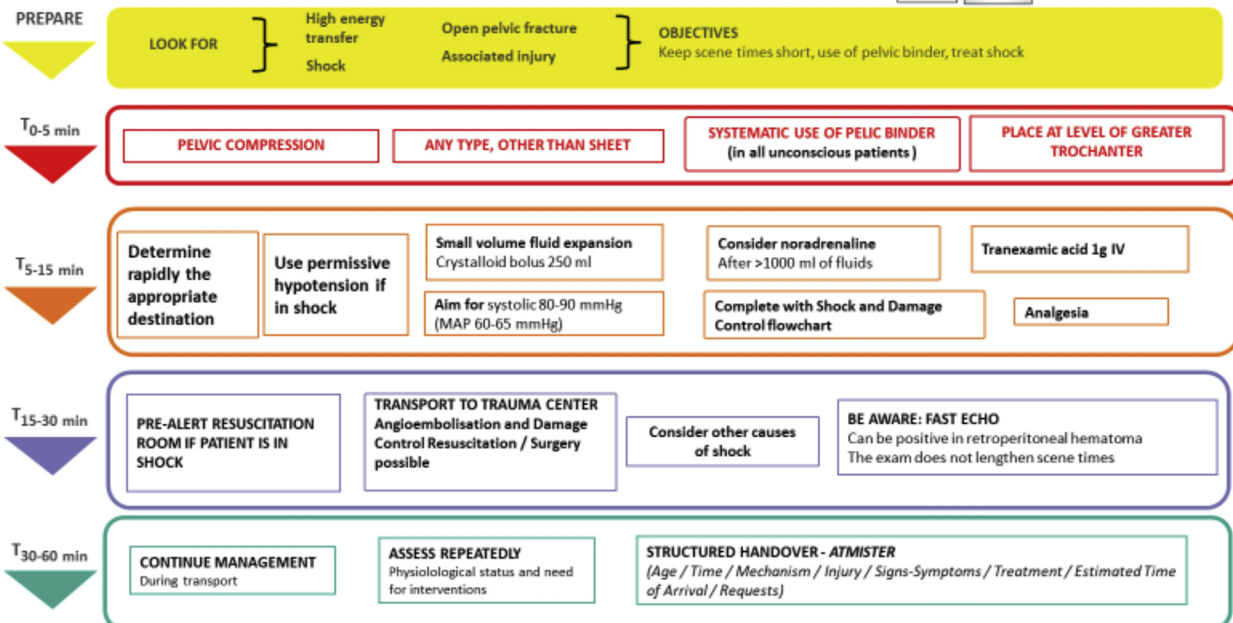
THORACIC TRAUMA /RESPIRATORY FAILURE - PREHOSPITAL



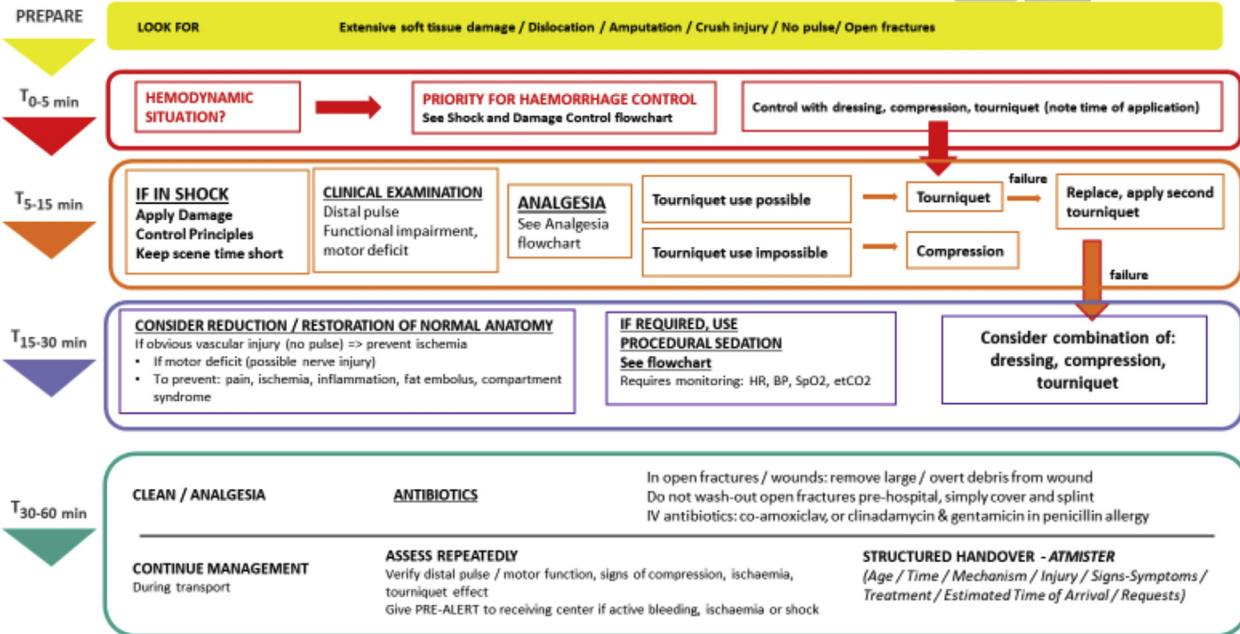
ABDOMINAL TRAUMA- PREHOSPITAL



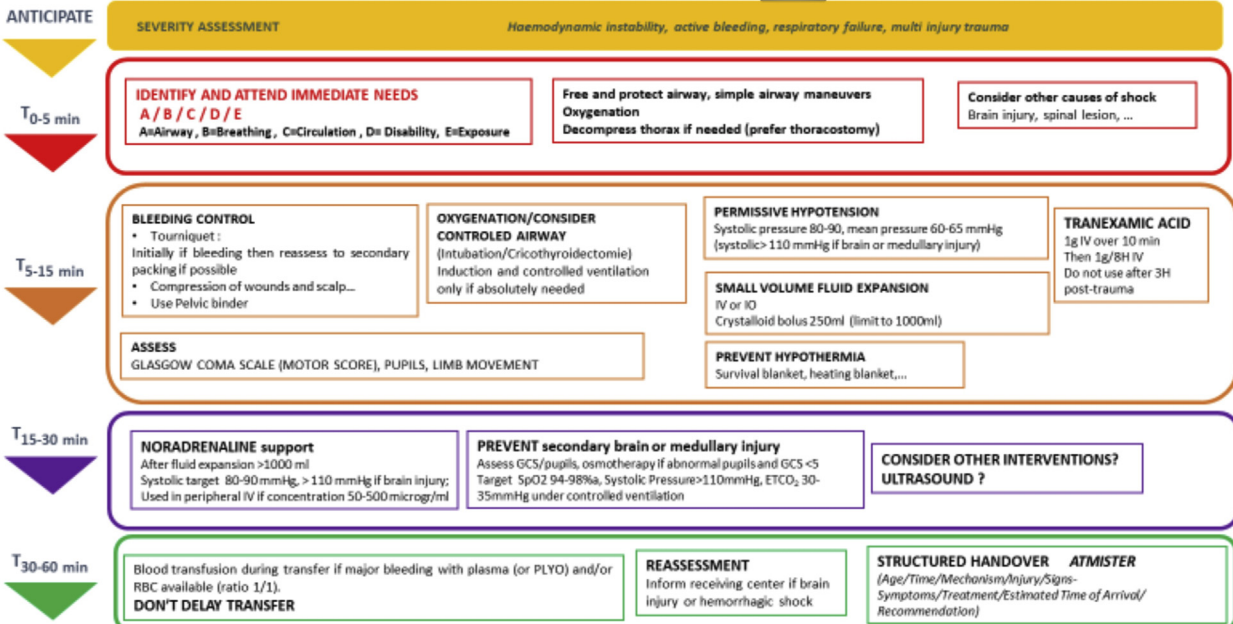
PELVIC TRAUMA - PREHOSPITAL



EXTREMITY/VASCULAR INJURY - PREHOSPITAL



DAMAGE CONTROL AND SHOCK - PREHOSPITAL



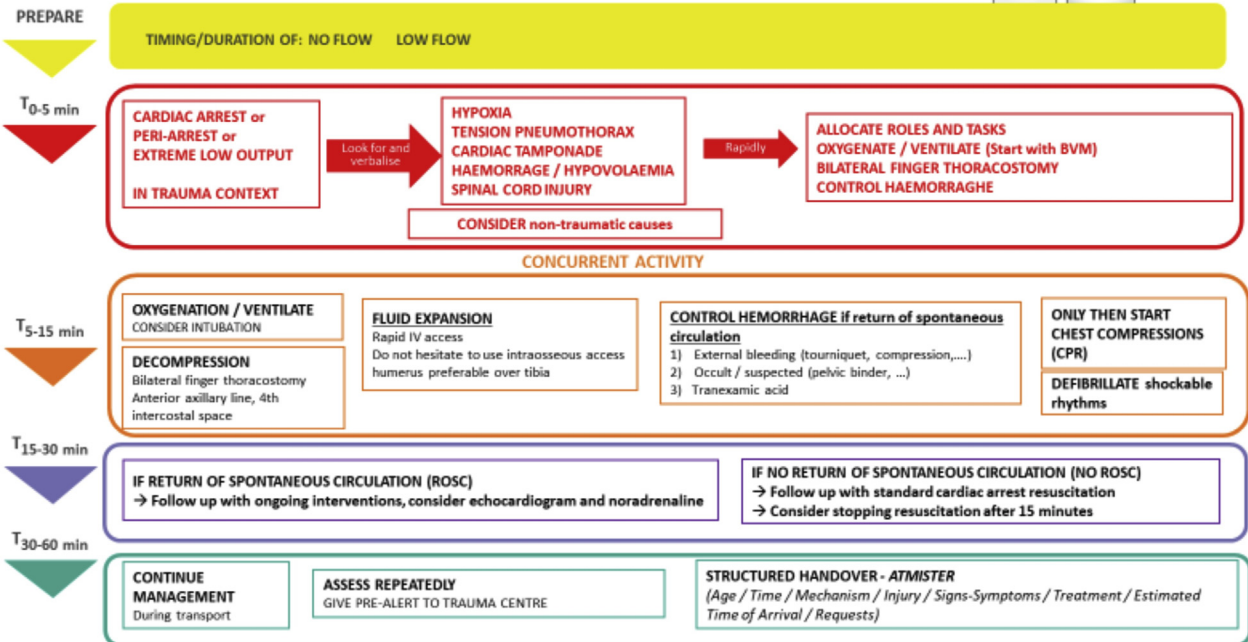
SEDATION/ANALGESIA - PREHOSPITAL



AIRWAY MANAGEMENT AND RAPID SEQUENCE INTUBATION - PREHOSPITAL



TRAUMATIC CARDIAC ARREST –PREHOSPITAL



MASS CASUALTY INDIVIDUAL CARE- PREHOSPITAL



ANTICIPATE

	WHAT DO WE KNOW ?	ROLE ALLOCATION	USE CHECK-LIST AND SCORES	WHAT TO PREPARE
T_{0-5 min}	S Stop the burning process	Engage with police and fire to make sure scene is safe, if otherwise wait for police and/or fire		
	A Assess the scene	Maintain situational awareness		
	F Free of danger?	Check with police and fire for safety		
T_{5-15 min}	E Evaluate the casualties	Screening and triage according to severity	START (SIMPLE TRIAGE AND RAPID TREATMENT) Walking ? Breathing ? Radial pulse ? GCS?	Prioritise according to severity and initiate only essential care
	M Massive bleeding control	Tourniquet: immediate use if active bleeding; then reassess and use compression as soon as possible Compress wounds Use pelvic binder		
	A Airway	Free airway, use oropharyngeal device, consider orotracheal intubation if appropriate according to situation (Rapid sequence induction if GCS < 8, uncontrolled pain, ...), consider cricothyroidotomy if required		
	R Respiration	Mechanical ventilation only if needed and resource use appropriate USE PERMISSIVE HYPOTENSION: systolic pressure 80-90 mmHg, mean arterial pressure 60-65 mmHg (SAP > 110 mmHg if brain or medullary trauma)		
	C Circulation	FLUID EXPANSION WITH SMALL VOLUME: intravenous or intraosseous access: crystalloid bolus 250ml (limit to 1000 ml); consider noradrenaline support after 1000ml. Fluid expansion Consider freeze-dried plasma if available without delaying the evacuation TRANEXAMIC ACID: 1g IV, and 1g/8h IV. Do not use after 3h post-trauma		
T_{15-30 min}	H Head / Hypothermia	GLASGOW COMA SCALE (GCS / MOTOR SCORE) & PUPILS PREVENT HYPOTHERMIA: Survival blanket, heating blanket		
	E Evacuation	Plan and organize transfer Note timing (accident, tourniquet, mobilisation...)		
	R Reevaluation	Reassess status. Reevaluate the patient. Complete		
T_{30-60 min}	E Eyes/ Nose	Clean and protect, nasal tamponade, if required and as appropriate		
	A Analgesia/ Prevent Secondary Injury	Analgesia: Morphine, Ketamine Prevent secondary brain injury: screening GCS/pupils, osmotherapy if abnormal pupil size; Objectives: SpO2 94-98%, systolic pressure > 110 mmHg, ETCO2 30-35 mmHg if ventilated, glycemia 8-10mmol/l and temperature 35-37°C		
	C Cleaning	Clean and bandage wounds and start antibiotherapy		
	EVACUATION AS SOON AS POSSIBLE		TRANSPORT AND DIRECTION ACCORDING THE AVAILABLE RESOURCES Use Structured Handover (ATMISTER)	

Conflict of interest

The authors have no conflict of interest to declare.

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Further reading

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