

H01: Principles of Major Trauma

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Introduction

Trauma is one of the leading causes of death worldwide. In Canada, trauma is the leading cause of death in people under age 45 and accounts for approximately 16,000 deaths per year. Despite advances in trauma resuscitation, hemorrhage, shock and coagulopathy remain the main drivers of preventable death after trauma and are responsible for over 40% of all trauma-related deaths.

Initiation of "damage control resuscitation" in the prehospital environment has the potential to reduce complications associated to hemorrhage by intervening at the point of injury, and preventing or limiting the development of acute coagulopathy of trauma-shock (ACoTS). Adopted from damage control surgery, damage control resuscitation prioritizes rapid definitive hemorrhage control, permissive hypotension (in select patients), the minimal use of crystalloid fluid, and timely delivery of balanced blood products.

Essentials

- Rapidly obtain definitive hemorrhage control
- Maximize tissue oxygenation
- Prevent or limit the development of hypothermia
- Minimize the use of crystalloid fluid for volume replacement
- Initiate rapid transport to an appropriate lead trauma hospital

Referral Information

- Pre-hospital Triage and Transport Guidelines for Adult and Pediatric Major Trauma in BC

General Information

- Triage patients according to the Provincial Pre-hospital Triage Guideline decision tool, including Physiological Criteria, Anatomical Criteria, Mechanism of Injury Criteria, and Special Considerations.
- Assessment and stabilization should follow the CABCDE pattern: Circulation, airway, breathing, circulation, disability (neurologic status), exposure.

Interventions

First Responder

- Control external bleeding
 - → [D02: Bleeding](#)
- Consider spinal motion restriction based on clinical indications
- Provide appropriate airway management
 - → [B01: Airway Management](#)
- Prevent further heat loss
- Supplemental oxygen as required
 - → [A07: Oxygen and Medication Administration](#)

Emergency Medical Responder – All FR interventions, plus:

- Consider Auto Launch or Early Fixed Wing Activation. Transport urgently.
- Control external bleeding.

- → [PR03: Tourniquets](#)
- → [PR04: Wound packing](#)

Primary Care Paramedic – All FR and EMR interventions, plus:

- Consider IV access with minimal use of crystalloid fluid
 - → [D03: Vascular Access](#)
- Consider permissive hypotension in select patients
 - → [D01: Shock](#)
- Control suspected internal bleeding
 - → [PR02: Pelvic Binders](#)
 - [Tranexamic acid](#) in cases of shock secondary to blood loss, and occult bleeding secondary to hypovolemia
- Consider analgesia as needed
 - → [E08: Pain Management](#)

Advanced Care Paramedic – All FR, EMR, and PCP interventions, plus:

- Consider IV/IO access
 - → [PR12 Intraosseous Cannulation](#)
- Consider anesthesia planning and intubation as required
 - → [PR18: Anesthesia Induction](#)
- Consider analgesia as needed
 - → [E08: Pain Management](#)

Critical Care Paramedic – All FR, EMR, PCP, and ACP interventions, plus:

- Consider point of care ultrasound (POCUS)
- Consider advanced anesthesia planning
- Consider balanced blood product resuscitation

Evidence Based Practice

[General Major Trauma Care](#)

