Te Whatu Ora
Health New Zealand

Procedure

Damage Control Resuscitation Procedure	
Applicable to: Te Whatu Ora Whanganui	**Authorised by:** Clinical Director of Emergency Department
	Contact person: Emergency Department

This procedure is overarched by Te Whatu Ora Whanganui's commitment to honouring our obligations under Te Tiriti o Waitangi and the five Tiriti principles: Tino rangatiratanga; Equity; Active protection; Options; and Partnership, as articulated in Te Tiriti o Waitangi Policy. In seeking to fulfil these obligations, the organisation is guided by the values and strategy outlined in He Hāpori Ora -Thriving Communities.

Damage control resuscitation ('aka' permissive hypotension) is applicable to the exsanguinating patient for a short period of time (approximately 30 minutes) while measures are put in place to definitively curtail bleeding.

Shock is a poor prognostic indicator with outcomes (mortality, coagulopathy and acute lung injury) directly proportional to its duration. Hence: SHOCK is not a goal, treatment or substitute for surgery.

However, for a short period of time, shock can be tolerated as a necessary evil, in the mentally intact patient. Aim to rapidly control bleeding either in ED, if possible, or urgently transfer to theatre for definitive care. Once bleeding is controlled, commence aggressive 'early goal-directed therapy' (EGT) to normalise physiology.

Management approach:

Targeted physiological status (no single parameter)

1. Maintain perfusion to sustain an intact sensorium.
2. MAP of 50-65.
3. Radial pulse present.

Fluids

- If 1-3 above achieved, consider withholding fluids.
- If physiological parameters are deteriorating, consider small boluses of crystalloid – NaCl .9% 250ml and assess response.
- For the actively exsanguinating patient, commence aggressive "haemostatic transfusion" using packed cells (0-negative blood initially) and FFP.
- Massive transfusion protocol for uncontrolled haemorrhage.
- Aim to stop haemorrhage as fast as possible, followed by aggressive EGT to normalise physiology.

Delayed definitive therapy

- Persistent states of hypoperfusion should not be tolerated beyond 20-30 mins. In consultation with surgeons and anaesthetists, formulate a plan for a limited fluid resuscitation. Permissive hypotensive strategies no longer apply.
- Haemostatic transfusion – 0-neg blood, packed cells and FFP.
- Small boluses of crystalloid, 250ml aliquots. Avoid total volumes exceeding 1.5 – 2l.
- Reiterate the urgent need for definitive care.

Further note:

- Trauma management must be individualised.
- Apply principles of haemostatic resuscitation (early replacement of blood coagulation factors and antifibrinolytic therapy) for ongoing haemorrhage.
- Permissive hypotension especially relevant for penetrating trauma awaiting transfer to theatre; controlled fluid therapy.
- Administer Tranexamic acid IV.
- Neuro-trauma: permissive hypotension contra-indicated, aim for SBP>100
- Evidence for permissive hypotension less robust for blunt trauma/isolated extremity fractures where bleeding can be controlled with tourniquet; aim to maintain perfusion to endorgans with carefully titrated fluid boluses.
- Blood pressure is a poor indicator of systemic tissue perfusion.
- Type of fluids: first line crystalloids, with emphasis on replacement of coagulation factors.
- Adequate amount of blood products must be crossmatched on arrival in ED.
- An ED consultant and anaesthetist should jointly plan and manage fluid resuscitation while arrangements for OT are made.