

Clinical Practice Guideline 5:

Catastrophic Haemorrhage

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KEY MESSAGES

- **Catastrophic haemorrhage can kill within minutes if not managed properly.**
- **Direct pressure is first line management.**
- **Use adjuncts if not controlled – haemostatic products/tourniquets.**
- **Remember Tranexamic Acid.**
- **Activate Major Blood Loss Protocols early.**

NIMTN Clinical Practice Guidelines are intended to inform standardised, best-practice care for injured patients across Northern Ireland. Although they are based on up to date evidence at the time of writing, readers should note that it remains the responsibility of individual clinicians to make final decisions regarding the most appropriate treatment for specific patients in their care.

Prehospital practitioners employed by Northern Ireland Ambulance Service (including those involved in specialist teams such as HEMS and HART) may find these guidelines informative but should continue to follow guidance contained within JRCALC, NIAS and HEMS guidelines and SOPs.

Background

Catastrophic Haemorrhage is a leading cause of morbidity and mortality in trauma. Its importance is emphasised in the commonly used trauma algorithm (coming even before airway management) <C>ABCDE. Without proper management catastrophic haemorrhage can kill within minutes. NCEPOD 2007 stated that it resulted in up to 30-40% of the deaths in trauma within the first 6 hours of injury.

Related Guidelines

[CPG 4: The Primary Survey](#)

[CPG 8: Circulation](#)

Immediate Measures

- Catastrophic Haemorrhage from Junctional Wounds

Simple measures should be followed initially. Direct pressure should be applied to the wound taking care not to push any foreign bodies e.g knife/glass further into the wound. If possible foreign bodies should generally be left in situ. If bleeding continues then direct pressure with haemostatic agents should be used - newer agents produce less of an exothermic reaction and are also safe in shellfish allergies. Larger wounds should be packed, e.g. with z-fold gauze. Penetrating wounds may be better managed with granules or with a specific applicator.

- Catastrophic Haemorrhage from Extremity Wounds

Occasionally indirect pressure at a more proximal pulse point can be utilised until a tourniquet is applied. Ideally a tourniquet should be placed 2-3 inches above the wound. If unsure where bleeding is coming from a tourniquet should be placed 'high and tight' until control of the situation is gained. A tourniquet should then be placed closer to the wound if possible. All staff should be familiar with the application of their particular brand of tourniquet. The wound should then be dressed, ideally with a haemostatic dressing.

- Catastrophic Haemorrhage from Non-compressible Sites

Pelvis – Apply a binder at the level of the greater trochanters in the unstable polytrauma patient.

Chest – Any open wounds should be managed with a chest seal. Massive haemorrhage (1500ml or $\leq 1/3$ of patient's blood volume or 200ml/hr for 2hours) should be referred to cardiothoracics.

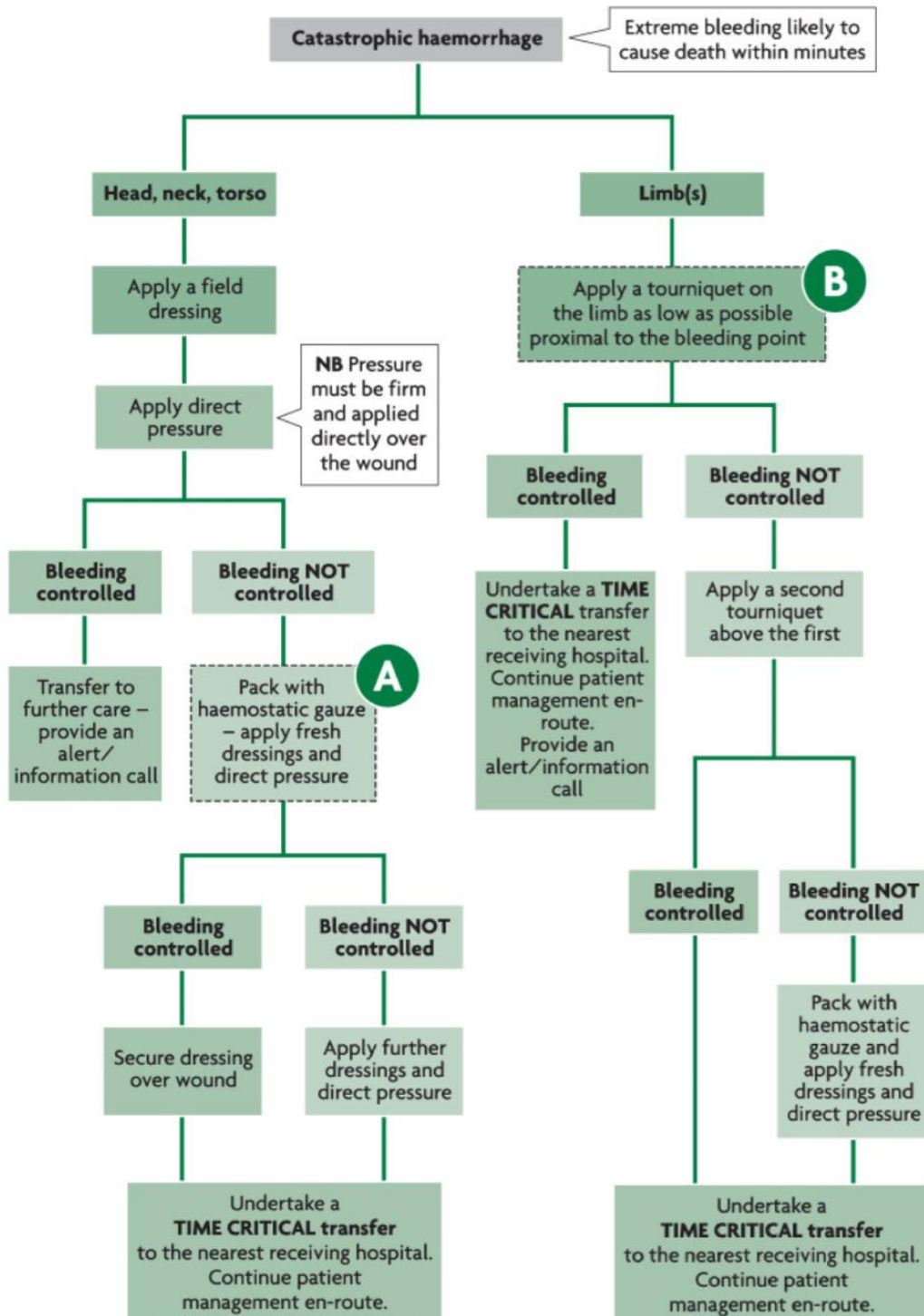
Abdomen – Management of massive haemorrhage is early damage control surgery.

Long bones – Reduce and splint to decrease bleeding.

Further Resuscitation

- *Tranexamic Acid*
Ensure 1 gram Tranexamic Acid is given within 3 hours of injury. A further 1 gram should be commenced as an infusion over 8 hours.
- *Acute Coagulopathy of Trauma (ACoT)*
Ensure patients are kept warm and whenever possible use blood products for resuscitation to ensure the risk of ACoT is kept to a minimum.
- *Massive Transfusion*
See [CPG 8: Circulation](#)
- *Definitive control*
As soon as practicable there should be definitive control of bleeding, usually surgical. Any further delays will likely worsen ACoT and outcomes.

Summary:
Catastrophic Haemorrhage Algorithm (JRCALC)



References

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