Emergency Department & Critical Care Major Trauma Drug Bags

1. The drug bags should be kept in the locations identified in the following pages.

2. The drug bags should be sealed with a tamper proof seal once restocked

3. Where controlled drugs are used from within the drug pouches, it is the responsibility of the individual using those drugs to ensure they are appropriately prescribed, signed for in a controlled drug register and communicate the need to replace or restock.

4. It is the responsibility of each clinical service to ensure contents are replaced as used and drugs within date prior to each use. The mechanisms to achieve this may vary but should include the ability to audit restock and expiry status of contents as well as trace those individuals responsible for each restock or maintenance of the bags.

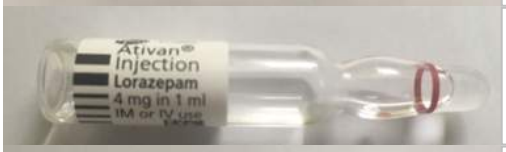
5. The drug bags should be available on activation of the trauma team in all major trauma calls, prior to arrival of the patient.

6. The bags should be available during the transfer or movement of any patient within or from the ED or critical care environments.

Emergency Department Major Trauma Drug Bag

Drug bag should be stored in the locked controlled drug cupboard in Resus 1 and/or 2

	**Ketamine** 10mg / ml 1 x 20ml vial
	**Midazolam** 1mg / ml 1 x 5ml ampoule
	**Morphine** 10mg / ml 2 x 1ml ampoule

	**Fentanyl** 50µg / ml 1 x 10ml ampoule
	**Propofol** 10mg / ml 1 x 20ml ampoule
	**Metaraminol** 10mg / ml 1 x 1ml ampoule
	**Rocuronium** 10mg / ml 2 x 5ml ampoule
	**Suxamethonium** 50mg / ml 2 x 2ml ampoule
	**Lorazepam** 4mg / ml 1 x 1ml ampoule
	**Tranexamic Acid** 100mg / ml 2 x 5ml ampoule

The ED drug bag contents may change over time, but should contain all key drugs to safely perform emergency anaesthesia for all types of major trauma patients.

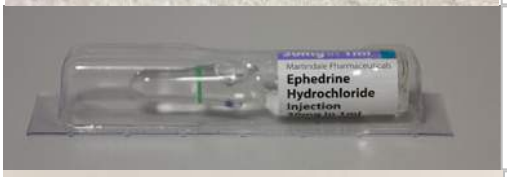
Note the ED also have a separate SOP covering the management of controlled drugs within the drug bag in the ED - clinicians should familiarise themselves with this.

Intensive Care Unit Drug Bag

Emergency drug bag kept in the Pod D fridge

	**Adenosine** 3mg / ml 3 x 2ml ampoule
	**Adrenaline** 1:10000 2 x pre-filled syringe
	**Adrenaline** 1mg/ml 2 x 1ml ampoule
	**Amiodarone** 300mg 1 x pre-filled syringe
	**Atropine** 600µg/ml 2 x 1ml ampoule
	**Calcium Chloride 10%** 10mg 1 x pre-filled syringe
	**Chlorphenamine** 10mg/ml 1 x 1ml ampoule
	**Glucose 50%** 1 x 50mls

	**Ipratropium nebuliser** 250µg/ml 2 x 1ml
	**Magnesium sulphate** 5g/10ml 1 x 10ml ampoule
	**Naloxone** 400µg/ml 2 x 1ml ampoule
	**Salbutamol** 2.5mg in 2.5ml 2
	**Sodium Bicarbonate** 8.4% 1
	**Tranexamic Acid** 100mg/ml 2 x 5ml ampoule
	**Propofol** 1% 2 x 20ml ampoule
	**Suxamethonium** 50mg / ml 2 x 2ml ampoule

	**Rocuronium** 10mg / ml 2 x 5ml ampoule
	**Atracurium** 10mg / ml 2 x 5ml ampoule
	**Metaraminol** 10mg / ml 1 x 1ml ampoule
	**Ephedrine** 30mg / ml 1 x 1ml ampoule
	**0.9% saline** 10mg 4 x 10ml

Tranexamic Acid (TXA) in Major Trauma

1. Tranexamic Acid (TXA) is indicated in the majority of seriously injured patients and all patients with suspicion of, or clinical signs of major haemorrhage.

2. It should be administered as early as possible and within the first 3 hours in all cases.

3. Complications associated with TXA administration are rare, but include risk of venous thromboembolism, hypotension on rapid bolus administration, anaphylaxis (rare).

4. Contraindications include: established disseminated intravascular coagulopathy, known allergy, known ureteric obstruction.

Background

Tranexamic is a synthetic derivative of lysine that inhibits fibrinolysis by blocking the lysine binding sites on plasminogen in the clotting pathway.

The 2010 Clinical Randomisation of an Antifibrinolytic in Significant Haemorrhage 2 (CRASH-2) was an international study of 20,207 trauma patients with or at risk of significant haemorrhage. Patients were randomised to double-blind treatment with either tranexamic acid or matching placebo, given within 8 hours of presentation. Tranexamic acid was associated with a 1.5% absolute reduction in mortality compared to placebo, with no increase in the risk of vaso-occlusive events.

The greatest benefit is seen when TXA is administered within the 1st hour after injury, but benefit remains up to 3 hours after injury.
Many patients arriving at hospitals in the Severn Trauma Network will have received TXA in the prehospital setting. The minority that have not should receive TXA, where no contraindications exist as early as possible in the ED admission.

Indications

- TXA should be given to ALL seriously trauma patients with blood loss as evidenced by systolic blood pressure of < 90mmHg or heart rate >110 bpm.

- Major trauma patients with normal physiology should be administered TXA where major injury is assumed to be present on mechanism, clinical examination and radiological findings.

- The best patient tariff recommends TXA within 3 hours of injury

- For any patient at risk of significant blood loss attending North Bristol NHS Trust within 8 hours of injury TXA should be administered if not already received.

Dose & Administration

- Initial loading dose: Tranexamic acid 1g is diluted in 100mls 0.9% saline. It is administered by intravenous infusion over 10 minutes. Infusion pump rate of 600ml/hour or a slow bolus over 10 minutes.

- Second dose: Tranexamic acid 1g diluted in 400mls 0.9% saline over 8 hours. Infusion pump rate of 50mls/hour.

Cautions

Caution should be taken when using TXA in patients with:

- Known allergy to tranexamic acid
- Known ureteric obstruction
- Established DIC

References

1. NICE Guidance: Significant haemorrhage following trauma: tranexamic acid
https://www.nice.org.uk/advice/esuom1/chapter/Key-points-from-the-evidence

2. Gruen Russell L, Reade Michael C. Administer tranexamic acid early to injured patients at risk of substantial bleeding *BMJ* 2012; 345 :e7133
http://www.bmj.com/content/345/bmj.e7133

3. The importance of early treatment with tranexamic acid in bleeding trauma patients: an exploratory analysis of the CRASH-2 randomised controlled trial. *The Lancet* 2011; 377: 9771, p1096-1101
http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(11)60278-X.pdf

4. Effects of tranexamic acid on death, vascular occlusive events, and blood transfusion in trauma patients with significant haemorrhage (CRASH-2): a randomized, placebo-controlled trial. *The Lancet* 2010; 376: 9734 p23-32
http://www.thelancet.com/crash-2-2010