

# Paediatric Massive Haemorrhage Protocol

Massive haemorrhage with signs of hypovolaemic shock or with no likelihood of control

Anticipated or actual blood loss of 40 ml/kg

- If trauma, call 2222. State "Paediatric code red trauma call" and give location. Call the Blood Transfusion Laboratory (the "Lab") ext 45777 or bleep 8286:
- "I am activating the Paediatric code red protocol"
- Patient identification – Hospital Number, name & date of birth and (estimated) weight of child
- Patient location – RSCH ED resus or main theatres or location in the Royal Alexandra Children's Hospital.
- Name and contact details of person activating protocol for ongoing communication
- Order Paediatric code red pack (adult code red pack B)

- Team Leader to:
- Nominate a member of the team to act as Communication Lead
  - Nominate the Code Red Porter to convey blood samples and blood components
  - Nominate a Blood Coordinator to ensure "right blood, right patient" and full traceability documentation

The Lab will prepare the Paediatric code red pack. Non-group specific packed red cells will be available immediately

Lab staff will ring communication lead with results of urgent investigations and to inform them that blood components are ready.

Communication lead will ring the Lab if they require further components before the first pack is used up.

Ensure the Lab is informed if ONCOLOGY PATIENT or IMMUNOSUPPRESSED if irradiated blood is required.

Availability of Blood for Collection

- Neg blood for girls,
- Pos blood for boys: Immediate
- Cross matched blood: 45 minutes
- Fresh Frozen Plasma: 30 minutes to thaw
- Cryoprecipitate: 30 minutes to thaw

Platelets: Immediate if on site  
 Replacement delivery up to 2 hours

- Insert 2 x IV or IO access
- Take bloods for Group & screen, FBC and coagulation screen with fibrinogen level at baseline. Aim at least 2 ml EDTA sample (ensure a minimum of 1 ml EDTA sample sent for crossmatch as a priority – use purple top paediatric bottle)
- Use bloodhound labelling or handwritten if not available – minimum patient identifiers UNK F/M with unique HN, ideally name / DOB / HN.
- Give 15 mg/kg Tranexamic acid (max 1 g) intravenously over 10 minutes then infuse 2 mg/kg/hour (max 125 mg/hour)
- Use 10 ml/kg warmed normal saline boluses until emergency blood available or Paediatric code red pack arrives

Attempt to get second group and save sample before starting the Paediatric code red pack.

Give Blood → FFP → Blood → Cryo in 10 ml/kg aliquots  
 Blood aliquots to be given sequentially, not concurrently

Ongoing bleeding?

Take bloods – FBC, U+E, INR, APTT, fibrinogen, gas and second G&S if not already obtained.  
 Reassess blood loss and response to treatment  
 Ensure clear plan for definitive haemorrhage control

Give Platelets: 10 ml/kg after 40 ml/kg blood products  
 Give Blood → FFP → Blood → Cryo in 10 ml/kg aliquots  
 Blood aliquots to be given sequentially, not concurrently

Resolution of bleeding

- Stand down of protocol
- Ensure documentation complete
- Return unused bags to lab within 4 hours

- Aim core temperature > 36°C
- Aim for platelets > 75 x10<sup>9</sup>/L
- Aim for fibrinogen > 2 g/L
- Aim for INR / APTT ratio < 1.5
- Aim Hb 80 – 100 g/L
- Keep base excess < -6 mmol/L
- Keep ionised Ca > 1 mmol/L
- Keep K < 6.0 mmol/L

Paediatric code red pack = adult code red pack B

	Dose	
	Child	Adult (≥ 60 kg)*
Blood (PRC)	10 ml/kg	See adult code red protocol
FFP	10 ml/kg	See adult code red protocol
Cryoprecipitate	10 ml/kg	See adult code red protocol
Platelets	10 ml/kg	See adult code red protocol

\*Child ≥ 60 kg = manage as per adult protocol