

Major Haemorrhage in Children

Clinical suspicion of MH with signs of hypovolaemia

>80 ml/kg 24 hours >40 ml/kg in 3 hours >3 ml/kg/min

*Please see guideline for age/weight blood loss estimates

On generation of Major Haemorrhage Alert (MH) the blood bank will contact the clinical area for patient information.

For any further communication with blood bank during the MH contact via the MH mobile phone number

07580 971 564

Suspect 40% blood loss if significant source of bleeding suspected and clinical parameters as follows:

Age	Heart rate	Systolic BP
<1 year	>160	<70
1-2 years	>150	<80
3-5 years	>140	<80
6-12 years	>120	<90
>12 years	>100	<100

Tachypnoea or increased work of breathing

Urine output <0.5ml/kg/hour

Before transfusion

- Check patient ID
- Use wristbands
- Ask parent if present

Primary C-MH pack

- Blood 30ml/kg (up to 5 units)
- FFP 15-30ml/kg FFP (up to 4 units)
- Aim for Trauma: RBC: FFP 1:1
- Other Major Haemorrhage Aim for RBC: FFP 2:1
- Give platelets if over 40mls/kg of red cells given

Reassess

- Re-assess ABC and clinical parameters regularly
- Document status

Get Senior Help

Contact Switchboard on 2222
Activate Paediatric Major Haemorrhage and state location

Assess ABC

Stop overt bleeding where possible

IV access

2 cannula (largest possible)
Send blood samples – crossmatch, FBC, PT / APTT / Fibrinogen, Biochemistry (U&E, LFT, ionised Ca, phosphate)
Arterial / venous blood gas measurement

In trauma or surgical bleeding check if **Tranexamic acid given. If not give ASAP** Initial bolus 15mg/kg (max 1g) followed by maintenance infusion 2ml/kg/hour

Resuscitate

IV fluids – crystalloid or colloid – 10–20ml/kg
Give oxygen

Give blood

Blood loss >40% blood volume (ie. >30ml/kg) is immediately life-threatening
Give 20ml/kg red cells (up to four units). Aim for Hb>80g/L
Give Group O D negative if immediate need and/or blood group unknown

Blood transfusion lab will provide group specific/ crossmatched red cells as required

Therapeutic aims

Hb	>80g/L
Platelets	>75 x 10 ⁹ /L
Fibrinogen	>1.5g/L
APTT/PT	<1.5x midpoint of normal range
Ionised calcium (on ABG)	>1mmol/L
pH	>7.2
Lactate	<1mmol/L
Core temperature	>35°C

Prevent coagulopathy

Anticipate need for platelets and FFP after 20–30ml/kg blood replacement and continuing bleeding
Give Primary Children's Major Haemorrhage (C-MH) Pack
Order Secondary Children's Major Haemorrhage (C-MH) Pack (Secondary pack to be given if bleeding continues)
Correct hypothermia and use fluid warmer
Correct hypocalcaemia (keep ionised Ca>1 mmol/L)
Contact Haematologist

Secondary C-MH pack

- Blood 30ml/kg (up to 5 units)
- FFP 15-30ml/kg (up to 4 units)
- Platelets 15ml/kg (up to 1 unit)
- Cryoprecipitate 10ml/kg up to 2 pools (300ml)

Maintain stability

Repeat blood gas (including Hb, ionised Ca, Na, K, glucose) every 30 minutes
Repeat FBC, coagulation after every 40ml/kg blood components given
Monitor HR, BP, capillary refill, saturation, temperature, urine output

Get more help to stop bleeding

Contact paediatric surgeons, paediatric gastroenterologists, PICU, radiology as appropriate