

BMS Education Training Day

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The world of Paediatrics



HOME GUIDELINES GUIDELINES TRANSFUSION FOR FETUSES, NEONATES AND OLDER CHILDREN

Transfusion for Fetuses, Neonates and Older Children

Date: 15 April 2016

Appropriate transfusion of fetal and paediatric patients of all ages is vital in order to balance transfusion benefits against risks. These risks include transfusion of an incorrect blood component due to errors such as mistaken patient identity, or unpredictable acute transfusion reactions (Stainsby et al, 2008). Recent studies suggest that a significant percentage of paediatric transfusion recipients receive only one transfusion during their admission (Slonim et al, 2008; New et al, 2014), raising the possibility that some may be avoidable. Specialised components are available for transfusion to different paediatric patient groups and for different clinical indications.

Plasma components have been imported for all patients born on or after 1st Jan 1996 in order to reduce the risk of transfusion transmission of variant Creutzfeldt-Jakob disease (vCJD; see section 7). Additional component safety measures are applied for fetal and neonatal patients, who are particularly vulnerable recipients because of their small size and developmental immaturity and who also have the longest potential lifespan. The clinical section focuses largely on aspects relating to transfusion indications and administration, whereas the laboratory section contains most of the information relating to pre-transfusion testing and component selection.

days old
s – 1 year
rs (but >16
admitted under adult

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Questions

- What is the total blood volume for a 2 year old?
- Define massive blood loss
- How would you manage this case , what products would you recommend?
- What are your targets?

Answers

1. Total blood volume 80mls/kg

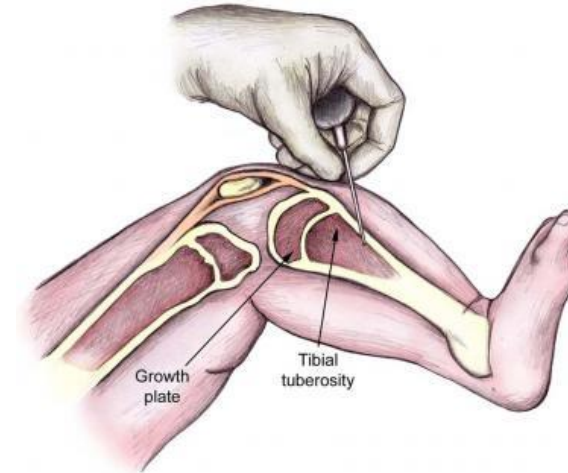
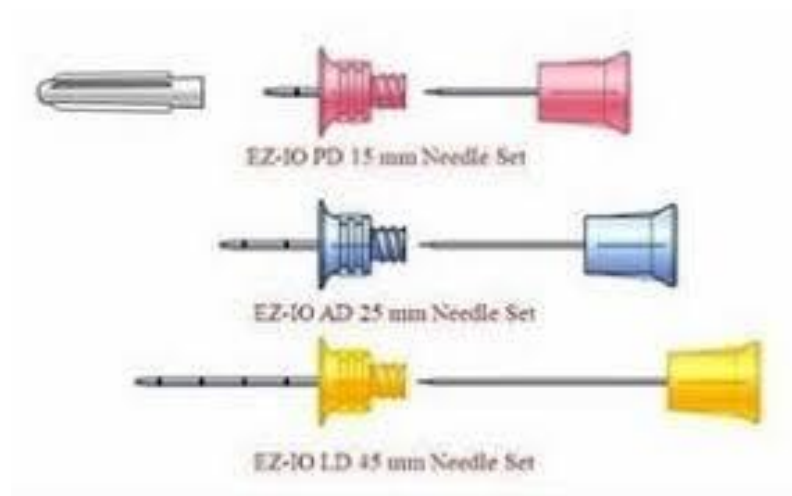
2. Massive blood loss defined

- 80mls/kg in 24 hours
- 40mls/kg in 3 hours
- 2-3mls/kg/min

3. Targets

- Hb 80
- Fibrinogen >1.5g/L
- PT ratio <1.5
- Platelet >75

If peripheral / central access is difficult what do you do?



Activate resuscitation

Specialist support

Group O Rh D negative /
Group Specific

Replace in **mls/kg**

Anticipate and treat
coagulopathy / low platelet

Tranexamic acid 15mls/kg

Avoid

- hypothermia
- Hypocalcaemia
- Acidosis
- hyperkalaemia

Immediate transfusion:

20mls/kg RBCs

1 FFP : 2 RBC

Use FFP , Cryo & Platelets
early if bleeding ongoing

After initial resuscitation

20mls/kg RBC

20mls /kg FFP

10mls/kg Cryo

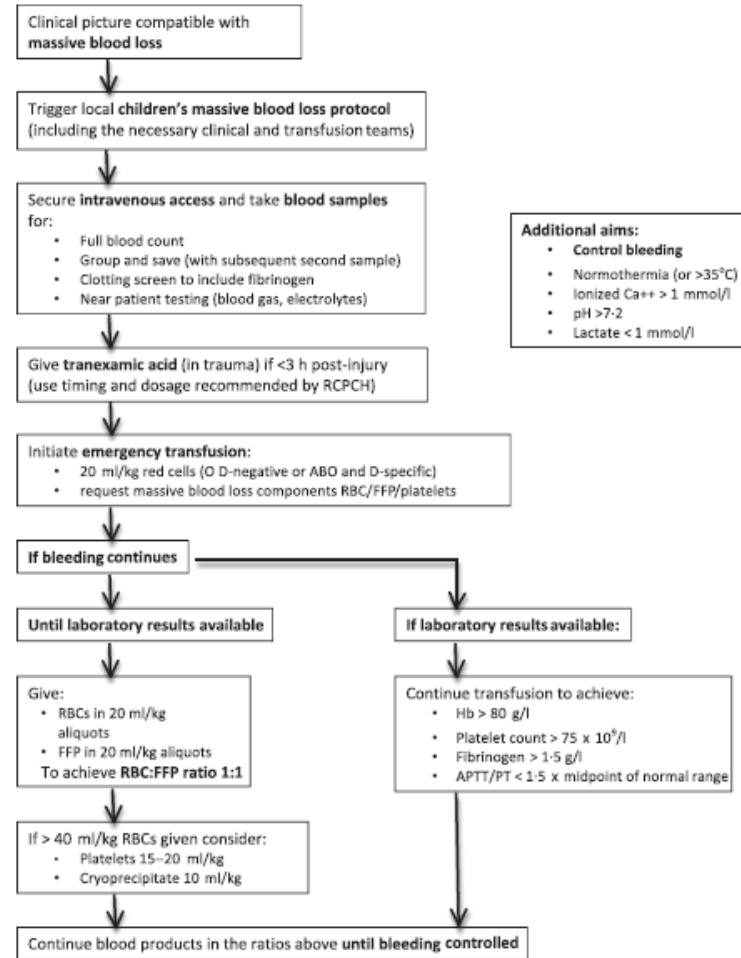
Platelets 15-20mls /kg

(after every 40mls/kg RBC)

Appendix 4

Example massive blood loss algorithm

Transfusion management for children (<50 kg) with massive blood loss*



Blood Component ABO Compatibility Chart

Patient's ABO Group	Compatible Red Blood Cells (RBCs)	Compatible Plasma
Group O	Group O	Group O, A, B, AB
Group A	Group A and O	Group A and AB
Group B	Group B and O	Group B, AB
Group AB	Group O, A, B, AB	Group AB

*This is an example algorithm of transfusion-related management of massive blood loss. Local guidelines will need to be developed to take into account current national and local resuscitation standards and surgical and trauma standards.

Algorithm may be adapted for neonatal use. Children >50 kg should be managed according to adult guidelines.

APTT, activated partial thromboplastin time; FFP, fresh frozen plasma; PT, prothrombin time; RBC, red blood cell; RCPCH, Royal College of Paediatrics and Child Health.

