

## Massive Haemorrhage Guideline (**CODE RED**)

<b>Version:</b>	<i>2.2.1</i>
<b>Author(s) and contact details:</b>	<i>Hospital Transfusion Committee</i>
<b>Purpose of the guideline:</b>	<i>Management of patients who suffer massive, sudden and unexpected blood loss</i>
<b>Who should use the guideline?</b>	<i>Clinical personnel managing the patient</i>
<b>How was the guideline developed?</b>	<i>Through literature review and clinical experience of senior clinicians involved in massive haemorrhage situations</i>
<b>How will the guideline be monitored?</b>	<i>Audit of Code Red activations and review of the paperwork</i>
<b>Approved by:</b>	<i>Joint Hospital Transfusion Committee</i>
<b>Date Approved:</b>	<i>September 2019</i>
<b>Review Date:</b>	<i>September 2021</i>

# CODE RED GUIDELINE

## NOTES

### Patient information

Name:

Age:

Weight:

Sex:

Diagnosis:

Location:

- Consider **CODE RED** activation in any clinical situation in which there is suspected or known unexpected, uncontrolled, on-going blood loss that will require resuscitation with blood products to restore and maintain circulating blood volume

### IF IN DOUBT CALL IT OUT

- For medical, surgical or traumatic bleeding – call switchboard on 2222 and activate

### CODE RED in...

- Make sure you name the location. The Trauma Team will be fast bleeped accordingly.
- Switchboard will additionally fast bleep the Blood Bank Technician, Haematology Consultant, Anaesthetic Blue Bleep holders and Theatre Co-ordinator for any **CODE RED** activation
- For excessive bleeding in a controlled environment such as Theatre or PICU where an emergency response team is not required but blood products are, you can activate as **CODE RED THEATRE xxx NO TRAUMA**

If you need to contact Blood Bank or the technician directly, use the following numbers:

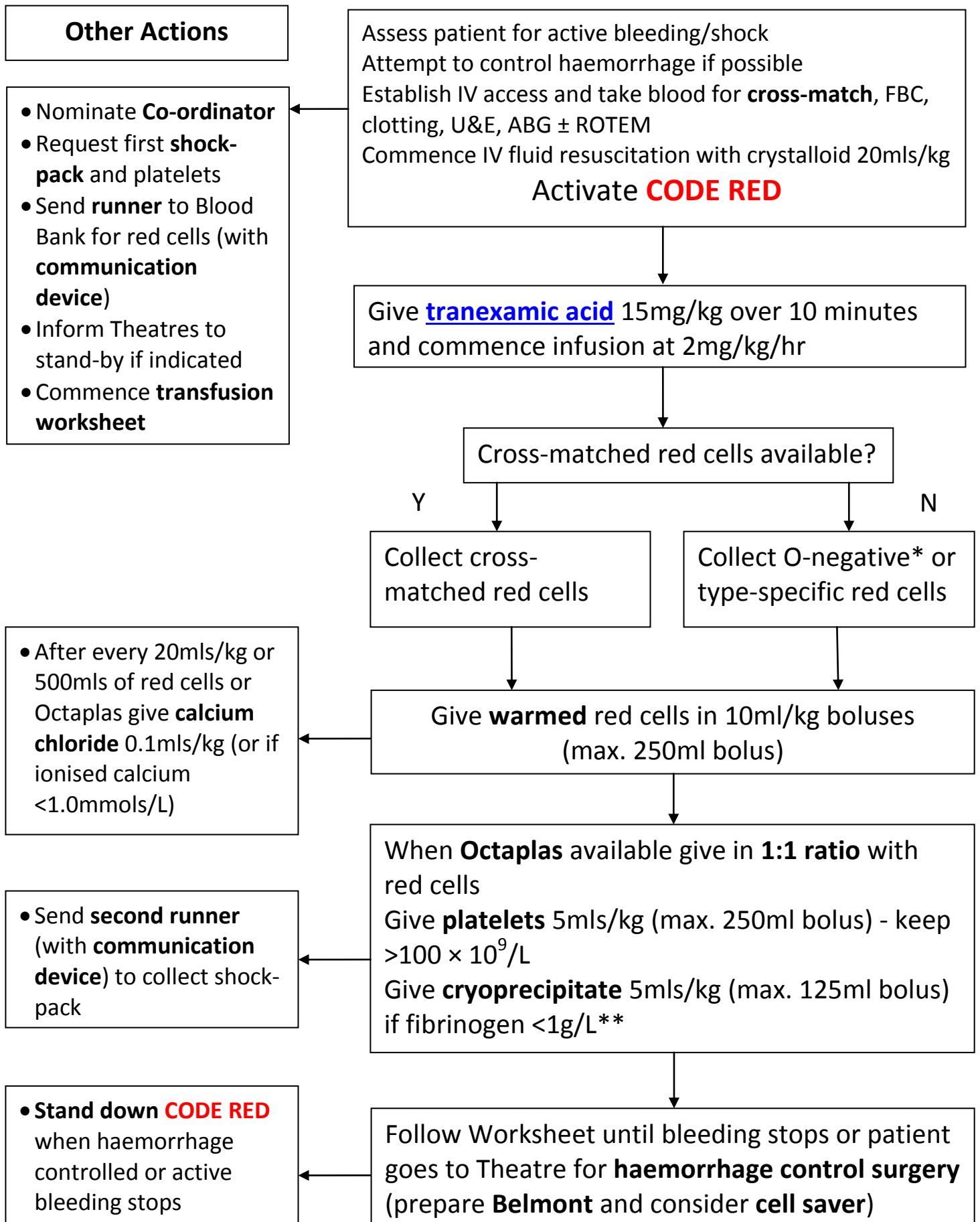
#### Blood Bank

Extension 9874 (9am-5pm)

Bleep 55034 (all other times)

O-neg blood is stored in fridges in Blood Bank, PICU, ED, and F-block and R-block Theatres

## CODE RED FLOWCHART



\*Collect only number of units appropriate for size of child

\*\*Octaplas may provide enough fibrinogen in 1:1 ratio initially, but thaw cryo in readiness

## CODE RED TRANSFUSION WORKSHEET

Surname: \_\_\_\_\_ Forename: \_\_\_\_\_  
 Patient ID: \_\_\_\_\_ Age: \_\_\_\_\_  
 Weight: \_\_\_\_\_ Estimated Y N  
 Bolus size: RBC ..... Octoplas ..... Plts .....  
 (Max. 250mls) (10mls/kg) (10-20mls/kg)\* (10-20mls/kg)\*

Weight formulae : 0-1 = (Age/2)+4 (in months)  
 1-5 = (Agex2)+8 (in years)  
 5-12 = (Agex3)+7 (in years)

\*Larger volume if blood results known

<b>Shock packs</b>			
	<b>&lt;10kg 1 year</b>	<b>10-20kg 1-5 years</b>	<b>&gt;20kg &gt;5 years</b>
<b>Red cells</b>	One unit	Two units	Four units
<b>Octoplas</b>	One unit	Two units	Four units
<b>Platelets</b>	One paed unit	Two paed units	One adult unit

<b>Time</b>	<b>Bolus count</b>	<b>RBC</b>	<b>FFP</b>	<b>Platelets</b>	<b>Cryo</b>	<b>Blood result</b>	<b>Think about</b>
:	1	[[ ]]	[[ ]]				TxA (15mg/kg)
:	2	[[ ]]	[[ ]]				Cell saver Gas/Hemocue
:	3	[[ ]]	[[ ]]				ROTEM/ clotting
:	4	[[ ]]	[[ ]]				Call for Plts±cryo
:	5	[[ ]]	[[ ]]				Calcium (0.3ml/kg CaGlu or 0.1ml/kg CaCl)
:	6	[[ ]]	[[ ]]				TxA infusion
:	7	[[ ]]	[[ ]]	[[ ]]	[[ ]]		ROTEM/ clotting
:	8	[[ ]]	[[ ]]				Blood gas Hemocue
:	9	[[ ]]	[[ ]]				Calcium (0.3ml/kg CaGlu or 0.1ml/kg CaCl)
:	10	[[ ]]	[[ ]]				Call for Plts±cryo
:	11	[[ ]]	[[ ]]				TxA infusion
:	12	[[ ]]	[[ ]]				ROTEM/ clotting
:	13	[[ ]]	[[ ]]				Blood gas Hemocue
:	14	[[ ]]	[[ ]]	[[ ]]	[[ ]]		Calcium (0.3ml/kg CaGlu or 0.1ml/kg CaCl)
:	15	[[ ]]	[[ ]]				Call for Plts±cryo

# Paediatric Major Trauma?

## Paediatric Major Haemorrhage? Then...

<b>T</b>	<b>Tranexamic Acid</b>	<ul style="list-style-type: none"> <li>• If not administered already:</li> <li>• 15 mg/kg bolus (max 1g), followed by</li> <li>• 2 mg/kg/hr over 8 hours</li> </ul>
<b>R</b>	<b>Resuscitation</b>	<ul style="list-style-type: none"> <li>• Code Red, Dial 9874 / Bleep 55034 &amp; consider:</li> <li>• Belmont/Level one rapid infuser</li> <li>• Cell salvage</li> <li>• Hypotensive resuscitation (if post-pubertal)</li> <li>• Pelvic binder/splint #s/tourniquet</li> <li>• Limit crystalloid and colloid use</li> </ul>
<b>A</b>	<b>Avoid Hypothermia</b>	<ul style="list-style-type: none"> <li>• Target temperature &gt; 36<sup>0</sup>C</li> <li>• Remove wet clothing and sheets</li> <li>• Warm fluids</li> <li>• Warming blanket/mattress</li> </ul>
<b>U</b>	<b>Unstable? Damage Control Surgery</b>	<ul style="list-style-type: none"> <li>• If unstable, coagulopathic, hypothermic or acidotic, perform damage control surgery</li> <li>• Aim surgery time &lt; 90 minutes</li> <li>• Haemorrhage control, decompression, decontamination and splintage</li> </ul>
<b>M</b>	<b>Metabolic</b>	<ul style="list-style-type: none"> <li>• Avoid acidosis</li> <li>• Base excess guides resuscitation</li> <li>• If lactate &gt; 5mmol/L or rising, consider stopping surgery, splint and transfer to ICU</li> </ul>
<b>A</b>	<b>Avoid Vasoconstrictors</b>	<ul style="list-style-type: none"> <li>• Inappropriate use of vasoconstrictors doubles mortality</li> <li>• However, use may be required in cases of spinal cord or traumatic brain injury</li> </ul>
<b>T</b>	<b>Test Clotting</b>	<ul style="list-style-type: none"> <li>• Consider TEG/ROTEM</li> <li>• Check clotting every 15ml PRBC/kg BW</li> <li>• Aim platelets &gt; 100x10<sup>9</sup>/L</li> <li>• Aim INR &amp; aPTT ≤ 1.5</li> <li>• Aim fibrinogen &gt; 1.5g/L</li> </ul>
<b>I</b>	<b>Imaging</b>	<ul style="list-style-type: none"> <li>• Consider: <ul style="list-style-type: none"> <li>• FAST (Not to delay CT)</li> <li>• CT: <ul style="list-style-type: none"> <li>• Most severely injured/haemodynamically unstable patients gain most from CT</li> </ul> </li> <li>• Interventional radiology</li> </ul> </li> </ul>
<b>C</b>	<b>Calcium</b>	<ul style="list-style-type: none"> <li>• Maintain ionised Ca<sup>2+</sup> &gt; 1.0 mmol/L</li> <li>• Administer 0.3ml/kg 10% Calcium Gluconate or 0.1ml/kg Calcium Chloride over 10 mins as required</li> </ul>