# KKH Paediatric Massive Transfusion Protocol (MTP)

Massive transfusion in children is defined as transfusion of >40 ml/kg (blood volume in children >1 month old is approximately 80 ml/kg)

MTP hotline to KKH blood bank: dial extension **8718** (only from CE/CICU/OT/ Angio suite).

See below for the MTP activation chart.

### Indications for MTP

Child given >40ml/kg fluid bolus or >20ml/kg blood. Primary cause of shock is haemorrhagic shock from uncontrolled bleeding.

Associated severe head injury/ spinal cord injury NO associated severe head injury/ spinal cord injury

Maintain normal cerebral perfusion pressure Cerebral perfusion pressure = MAP - ICP Haemostatic resuscitation with permissive tachycardia

# Systolic blood pressure goals: <1month: SBP =

60mmHg 1month – 1year: SBP = 70mmHg 1 to 10years old: SBP = 70 + {(age in

years) x 2} >10 years old: SBP

= 90mmHg

## Monitor for:

- 1. Temperature >35 and treat hyperthermia aggressively
- 2. Treat hypotension aggressively in children with head injury or spinal cord injury
- 3. Platelets
  - Keep platelets ≥ 50 x 10<sup>9</sup>/L if NO significant head injury present
  - Keep platelets ≥ 100 x 10<sup>9</sup>/L in presence of significant head injury
- 4. Blood gases/ electrolytes
  - pH >7.2
  - Base excess < −6</li>
  - Ca 2+ > 1.1mmol/L
  - Monitor for hyperkalemia
- 5. Coagulation profile
  - PT/ aPTT < 1.5x normal</li>
  - INR ≥1.5
- 6. Fibrinogen >1g/L
- 7. Lactate < 3 mmol/L

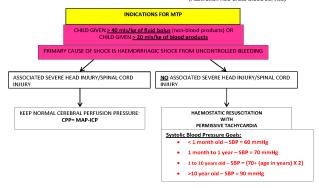
Annex A

### KKH MASSIVE TRANSFUSION PROTOCOL (MTP) FOR PAEDIATRICS

Massive transfusion is defined, in adults, as replacement of >1 blood volume in 24 hours or >50% of blood volume in 4 hours (adult blood volume is approximately 70 mL/kg).

In children, it is defined as transfusion of >40 mL/kg (blood volume in children over 1 month old is approximately 80 mL/kg).

(Australian Red Cross Blood Service)



#### MONITOR FOR:

- Temperature > 35 C and treat hyperthermia aggressively
- Treat HYPOTENSION aggressively in patients with head or spinal cord injury
- FBC
  - Platelets ≥ 50 × 10 Lif NO significant head injury
  - Platelets ≥ 100 × 10<sup>9</sup>/L if significant head injury present
- Blood gases
- pH > 7.2
  - Base excess < −6
- Ca<sup>2</sup>+ > 1.1 mmol/L
- K<sup>†</sup>: monitor for hyper K<sup>†</sup>
- Coagulation profile
- PT/APTT < 1.5 × normal</li>
  - INR ≤ 1.5
- Fibrinogen (if done) > 1.0 g/L
- Lactate (if done) < 3 mmol/L

7 of 11

Annex B

#### ACTIVATION FOR MTP

#### MTP ACTIVATED BY

TRAUMA CODE AT CE - BY TRAUMA CODE LEADER

OT - EMERGENCY ACTIVATION (UNANTICIPATED) BY ANAESTHETIST

CICU - EMERGENCY ACTIVATION (UNANTICIPATED) BY CICU SPECIALIST

ANGIOGRAPHY SUITE – EMERGENCY ACTIVATION BY INTERVENTIONAL RADIOLOGIST / ANAESTHETIST



MTP HOTLINE TO BLOOD BANK (Ext 8718)

MTP (Paeds) will use the dedicated line for adult MTP activation (NB: MTP activation – from CE, OT, AngioSuite or CICU only)



MTP INFORMS BLOOD BANK "MTP ALPHA / BRAVO / CHARLIE / DELTA AT CE / OT / ANGIOSUITE / CICU"



MTP SITE SENDS GXM TO BLOOD BANK



PACKED CELLS (O+) + FFP + PLATELETS DELIVERED ASAP TO MTP SITE



FIRST LOT OF FFP DELIVERED TO MTP SITE AFTER 30 MINS (THAWING)



BLOOOD BANK CONTACTS MTP SITE RE: NEED FOR SUBSEQUENT LOT(S) OF FFP 5 MINS TO 10 MINS FOLLOWING DISPATCH OF FIRST LOT OF FFP

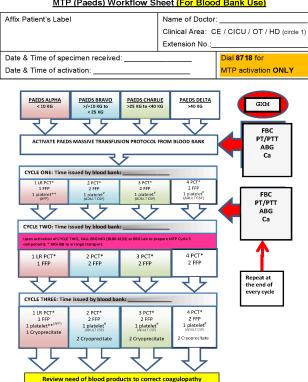
SUBSEQUENT LOTS OF PACKED CELLS RAPID MATCHED



UNCONTROLLED BLEEDING STABILISED – <u>STOP MTP (Ext 8718)</u>

Annex C

## MTP (Paeds) Workflow Sheet (For Blood Bank Use)



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