

PAEDIATRIC MASSIVE TRANSFUSION PROTOCOL (MTP)

Senior clinician identifies critical bleeding event: actual or anticipated significant blood loss leading to life threatening morbidity or mortality

Notify transfusion laboratory to: 'Activate MTP'. Sunshine: 51480 Communicate using ISBAR: include patient weight
 Note: There is no massive transfusion pack at WH. Blood & Blood products must be requested according to the patient's clinical condition and requirements.

Allocate team roles: Team leader; Communication lead to communicate with the lab and teams; Sample taker/investigation organiser/documenter
Transporter for blood sample delivery and pick up of blood and blood products

Baseline: FBE, coagulation screen (PT, INR, APTT, fibrinogen), biochemistry, ABGs, Blood Group – accurately & legibly hand labelled

Is blood required in less than 10 minutes?

NO

YES

Child < 20kg: Request 1 unit uncrossmatched O Neg RBC
Child > 20kg: Request 2 units uncrossmatched O Neg RBC

Request:

Child < 10kg: 1 unit RBC, 1 unit FFP	Child 10 - 20kg: 2 units RBC, 2 units FFP
Child 20 - 40kg: 3 units RBC, 2 units FFP	Child > 40kg: 4 units RBCs, 2 units FFP

FFP (Fresh Frozen Plasma) 20-30 mins to thaw

Transfuse:

- RBC and FFP: 10mL/kg in aliquots in a 1:1 ratio. Reassess rate of blood loss and response to treatment and repeat as necessary.

Consider:

- Platelets: 1 bag per 4 units of RBC transfused or 5mL/kg for every 10mL/kg RBC transfused. *(Limited supply on-site)*

Include:

- Cryoprecipitate if fibrinogen < 1.5g/L: 1 unit of cryoprecipitate per 5 kg *(Seek advice from Haematologist. 20 -30 mins to thaw)*

Trauma: Tranexamic acid in trauma patients if within 3 hours of initial injury: 15mg/kg (Max 1g) in 10mL over 10 minutes followed by a maintenance dose: 2mg/kg/hr for 8 hours.

OPTIMISE:

- Oxygenation
- Cardiac output
- Tissue perfusion
- Metabolic state

MONITOR

(Every 30–60 mins):

- Full blood count
- Coagulation screen
- Ionised calcium
- Magnesium
- Arterial blood gases

AIM FOR:

- Temperature > 35°C
- pH > 7.2
- Base excess less than 6
- Lactate < 4 mmol/L
- Ca²⁺ > 1.1 mmol/L
- Hb > 70g/L
- Platelets > 50 × 10⁹/L
- PT/APTT < 1.5 × normal
- INR ≤ 1.5
- Fibrinogen > 1.5g/L

YES

Bleeding controlled?

NO

Notify transfusion laboratory to: 'Cease MTP'

Return all unused blood products to the laboratory. Ensure complete documentation

Laboratory staff and Haematologist
 Actions as per Adult MTP

Paediatric MTP Dosing Guide

Blood Products

													ADULT
Approximate Weight (kg)	1	3	4	5	6-7 6	8-9 8	10-11 10	12-14 13	15-18 16	19-22 20	23-28 26	29-36 32	>40
Approximate Age	Prem newborn	Newborn	Newborn	2 mos	4 mos	8 mos	1 yr	2 yr	4 yr	6 yr	8 yr	10yr	12 yr
Administer RBC and FFP 1:1 in weight appropriate volumes to maintain haemostasis and blood pressure. For every 20 mL/kg blood volume loss give:													
RBC @ 10 mL/kg (1 unit RBC ~ 280 mL)	10 mL	30 mL	40 mL	50 mL	60 mL	80 mL	100 mL	130 mL	160 mL	200 mL	260 mL	1 unit	1 unit
FFP (thawed plasma) @ 10 mL/kg (1 unit FFP ~ 300 mL)	10 mL	30 mL	40 mL	50 mL	60 mL	80 mL	100 mL	130 mL	160 mL	200 mL	260 mL	1 unit	1 unit
Platelets @ 5 mL/kg (Variable volume product)	5 mL	15 mL	20 mL	25 mL	30 mL	40 mL	50 mL	65 mL	80 mL	100 mL	130 mL	1 pooled per 4 RBC/FFP	1 pooled bag per 4 RBC/FFP

Product specifications	RBC Adult: 220 - 280mL Pedi: 50 -100mL (not routinely on-site)	FFP Adult: 250 -310mL Pedi: 60-80 mL (not routinely on-site)	Platelets 100 – 400mL	Cryoprecipitate 30 – 60mL
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- Transfuse all fresh blood products (RBC, FFP, Platelets Cryoprecipitate) through a 170 to 200 micron filter.
- If a syringe is used fresh blood products must be drawn into the syringe via 170-200 micron filter.
- A fresh giving set is required for platelets.
- IV fluids that contain calcium or dextrose must not be used to prime or flush blood administration sets or be infused concurrently with blood or blood products.

Tranexamic acid Based on weight, enter values in Alaris pump	Trauma only Consider <u>only</u> if within 3 hours of initial injury Administer BOLUS DOSE (15mg/kg over 10 minutes- maximum 1g) then MAINTENANCE DOSE (2mg/kg/h for 8 hours)											
		3	4	5	6	8	10	13	16	20	26	32
Approximate weight (kg)												
Loading dose		45 mg	60 mg	75 mg	90 mg	120 mg	150 mg	195 mg	240 mg	300mg	390 mg	480 mg
Maintenance dose/hr		6mg	8 mg	10mg	12 mg	16 mg	20 mg	26 mg	32 mg	40 mg	52 mg	64 mg

MTP RUNNING SHEET

AFFIX PATIENT ID LABEL HERE or Patient Name: Patient UR:	Medical Officer:	Contact number:	Consultant Haematologist::
	Date:/...../...	MTP: Activated:.....hrs. Ceased:.....hrs.	
Comments:			

PRODUCTS GIVEN	Time											
Uncrossmatched O Neg Units/Volume												
RED CELLS – Units/Volume												
FFP Units/Volume												
PLATELETS Pool/Volume												
CRYOPRECIPITATE Units/Volume												
PROTHROMBINEX Int Units												
Recombinant factor VIIa (Novo 7)												
Other:												
Pathology Results												
INR												
APTT												
FIBRINOGEN												
D-Dimer												
Hb												
PLATELET COUNT												