

Paediatric Massive Haemorrhage Pathway

Massive Bleeding PLUS signs of Shock or Coagulopathy

INITIATE Call Blood Bank 24015. State **"I am requesting Paediatric Stat Pack"**

Provide patient gender and weight (estimated or actual)

SEND Group + Screen

CONSIDER Tranexamic Acid (15mg/kg to maximum 1g)

Paediatric Stat Pack: 2 RBC (1 RBC < 10kg)

Transfuse 10mL/kg OR 1 unit RBC if > 30kg then reassess

Ongoing bleeding or shock then transfuse 10mL/kg OR 1 unit if > 30kg

REASSESS Ongoing Massive Bleeding or Shock?

ACTIVATE **Paediatric MHP**: Identify Transfusion Coordinator and call Blood Bank 24015

State **"I am activating Paediatric MHP Alpha/Bravo/Charlie OR Adult Standard MHP"**

Provide patient NHI + gender + weight (estimated or actual)

ALPHA 0-10kg	BRAVO 11-20kg	CHARLIE 21-45kg	ADULT STANDARD MHP > 45kg
ALPHA pack 1 RBC 1 FFP 1 Cryo 1 Neo Platelets Transfuse 10mL/kg in the following order: First Round RBC, FFP RBC, Cryo 0.45mL/kg Ca. gluconate Second Round RBC, FFP RBC, Platelets 0.45mL/kg Ca. gluconate	BRAVO Pack 1 1 WB only Or 1RBC & 1 FFP BRAVO Pack 2 1 RBC 1 FFP 1 Cryo BRAVO Pack 3 1 RBC 1 FFP 150mL Platelets*	CHARLIE Pack 1 2 WB only Or 2 RBC & 2 FFP CHARLIE Pack 2 2 RBC 1 FFP 2 Cryo CHARLIE Pack 3 2 RBC 2 FFP 1 Platelets*	STANDARD Pack 1 2 RBC & 2 FFP Or 2 WB STANDARD Pack 2 4 RBC 4 FFP 3 Cryo STANDARD Pack 3 4 RBC 4 FFP 1 Platelets*
With each pack, give 0.3mL/kg Ca. gluconate			With each pack, give - 10mL Ca. chloride or - 30mL Ca. gluconate
Repeat	Alternate pack 2 & 3	Alternate pack 2 & 3	Alternate pack 2 & 3

Coagulation Targets

PR < 1.5 | APTT < 40

Fibrinogen > 1g/L

Platelets > 75x10⁹/L

Ionised Ca > 1.1mmol/L

If Not, Give

20mL/kg FFP

5mL/kg Cryo

10mL/kg Platelets*

0.3mL/kg Ca. gluconate

Bloods (repeat every 30 min)

Blood gas (including K⁺ /Ca⁺⁺)

FBC

Coags (including fibrinogen)

Viscoelastic if available e.g. TEG®

Team Leader of the Resuscitation



- The team leader is the decision maker including activation of the MHP once the stat packs have been transfused
- Send urgent group & screen sample to Blood Bank
- Ensure Tranexamic Acid is administered, as a bolus through a fast flowing IV line

Transfusion Coordinator (e.g. Guardian, Coordinator)



- Supports the team leader
- Once the MHP has been activated, communicate with the Blood Bank team

Tasks (Delegated as necessary)

- Once Stat Packs have been transfused - reassess the patient in conjunction with the team leader
 - If required after stat pack - activate MHP, state which MHP pathway (i.e. Alpha/Bravo/Charlie/Adult Standard MHP)
 - If senior clinician requests MHP activation immediately, stat pack is still issued while the blood bank prepared pack 1
 - Ensure Blood Bank have your name and contact number
 - Organise adequate orderly/ health care assistant support (fetching Stat Pack from Lamson and Packs from Blood Bank)
 - Repeat MHP bloods every 30 minutes
 - With every MHP pack, ensure Calcium is given through fast flowing line
 - Hand-over coordination role if patient location changes; ensure Blood Bank notified of new coordinators name and number
 - Cease MHP once the patient is clinically stable, inform Blood Bank, move to targeted therapy
 - Ensure transfusion documentation/ checklists maintained; all swing labels retained
- *Smaller Centres should** check Full Blood Counts BEFORE giving platelets, avoiding if $PLT > 75 \times 10^9/L$

Blood Bank roles



- Process urgent group and screen
- Liaise with transfusion coordinator
- Release Stat Pack and MHP packs as per SOP
- Notify NZBS TMS as per SOP & manage inventory
- Ensure Blood Bank MHP Tracking form/ checklist documentation and eTraceline records maintained

Smaller Centres BEFORE releasing Pack 3, liaise with MHP coordination role to confirm PLT count is $< 75 \times 10^9/L$

MHP Runner



- This can be HCA/Orderly/RN or anyone else available to collect blood products from Blood Bank
- Liaise with the transfusion coordinator regarding product Collection
- Stay with the MHP until you are released by the transfusion coordinator
- Return blood products to Blood Bank as directed by the transfusion coordinator

Infusion Standards



- RBC, FFP, Cryoprecipitate:
 - warmed
 - standard blood infusion set
- Platelets:
 - warmed or room temp
 - new infusion set preferred, not essential

Clinical Targets



- Surgical/ radiological **control of bleeding** ASAP
- Normal **pH/base deficit**
- Normal body **temperature**
- **A lower MAP** may be tolerated until bleeding slowed
 - unless brain injury

Glossary

RBC: red blood cells	WB: whole blood	FFP: fresh frozen plasma
Cryo: cryoprecipitate	Neo: neonatal	PLT: platelets
Ca: calcium	PR: prothrombin ratio	Coags: basic haemostasis screen