

Adult Massive Haemorrhage Pathway

Massive Bleeding PLUS
Shock Signs or HR > 120 or SBP < 90

Code Crimson MHP

Trauma + ABC Score ≥ 2
+ senior clinician approval

Standard MHP

Medical or Surgical Bleeding

Obstetric MHP

2g Tranexamic Acid

1g Tranexamic Acid

1g Tranexamic Acid

Send Group + Screen

Initiate: Call Blood Bank ext 6961/6962, Provide Patient Details
State "I am requesting (Crimson, Standard, Obstetric) Stat Pack"

Crimson Stat Pack

2 RBC & 2 FFP

Standard Stat Pack

2 RBC

Obstetric Stat Pack

2 RBC

Reassess: Ongoing Massive Bleeding + Shock?

Activate MHP: Identify Transfusion Coordinator, Call Blood Bank ext 6961/6962
State "I am activating (Crimson, Standard, Obstetric) MHP"

Crimson Pack 1

Straight to Pack 2

Standard Pack 1

2 RBC & 2 FFP

Obstetric Pack 1

2 RBC, 3 Cryo

Pack 2

4 RBC, 4 FFP
3 Cryo

10ml CaCl OR 30ml Ca Gluconate with every pack

Pack 3

4 RBC, 4 FFP
1 Platelet*

Bloods:

- repeat every 30min
- Blood gas
- iCa^{2+}
- FBC
- Coags
- Fibrinogen
- Viscoelastic if available e.g. TEG[®]

Alternating packs 2 & 3 until bleeding slowed

Then stop MHP, and start targeted transfusion

Coagulation Targets

PR < 1.5 | APTT < 40

Fibrinogen > 2g/L

Platelets > $75 \times 10^9/L$

Ionised Ca^{2+} > 1.1 mmol/L

If Not, Give

4 U FFP

3 U Cryoprecipitate

1 U Platelets**

1g Calcium

Obstetric Haemorrhage

- Manage Tone, Trauma, Tissue, Thrombin causes of haemorrhage
- Repeat TXA 1g 30 min after initial dose if significant ongoing bleeding

*See notes on page 2

CODE CRIMSON - ABC Score

- Penetrating mechanism = 1
- SBP \leq 90 mmHg = 1
- Positive eFAST** = 1
- HR \geq 120 bpm = 1

Code Crimson requires senior clinician approval and input, as activation identifies the highest risk trauma patients and needs a multi-service approach.

**eFAST scan accuracy relies on the skill level of the practitioner

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 to blood bank
- Ensure Tranexamic Acid is administered, as a bolus through a fast flowing IV line

Transfusion 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. code crimson/standard/obstetric MHP)
 - If senior clinician requests MHP activation immediately, stat pack is still issued while the blood bank prepares pack 1/pack 2
- Ensure blood bank have your name and contact number
- Organize adequate orderly/health care assistant support
- Repeat MHP bloods every 30mins
- With every MHP pack, ensure 10mL Calcium Chloride 10% or 30mL Calcium Gluconate 10% is given as a bolus 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 Count BEFORE giving platelets, avoid transfusing if PLT $>$ 75 x 10⁹/L

Blood Bank Roles



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

Smaller Centres BEFORE releasing Pack 3, liaise with MHP coordination role to confirm PLT count is $<$ 75 x 10⁹/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