Adult Massive Haemorrhage Pathway

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

Code Crimson MHP	Standard MHP	Obstetric MHP
Trauma + ABC Score ≥ 2 + senior clinician approval	Medical or Surgical Bleeding	
2g Tranexamic Acid	**1g Tranexamic Acid**	**1g Tranexamic Acid**

Send Group + Screen
Initiate: Call Blood Bank 24015, Provide Patient Details
State "I am requesting (Crimson, Standard, Obstetric) Stat Pack"

Crimson Stat Pack	Standard Stat Pack	Obstetric Stat Pack
2 RBC & 2 FFP or 2 WB	2 RBC or 2 WB	2 RBC

Reassess: Ongoing Massive Bleeding + Shock?
Activate MHP, Identify Transfusion Coordinator, Call Blood Bank 24015
State "I am activating (Crimson, Standard, Obstetric) MHP"

Crimson Pack 1	Standard Pack 1	Obstetric Pack 1
Straight to Pack 2	2 RBC & 2 FFP or 2 WB	2 RBC, 3 Cryo

Pack 2
4 RBC, 4 FFP
3 Cryo

1g Calcium with every pack

Pack 3
4 RBC, 4 FFP
1 Platelet*

Alternating packs 2 & 3 until bleeding slowed

Then stop MHP, and start targeted transfusion

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

Coagulation Targets	If Not, Give
PR < 1.5 | APTT < 40	4 U FFP
Fibrinogen > 2g/L	3 U Cryoprecipitate
Platelets > 75 x 10^9/L	1 U Platelets**
Ionised Ca^{2+} > 1.1 mmol/L	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

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CODE CRIMSON - ABC Score

- **Penetrating** mechanism = 1
- **SBP ≤ 90** mmHg = 1
- **Positive eFAST*** ** = 1
- **HR ≥ 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 (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. 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
- Ensure 1g Calcium given with every MHP pack *(10mL CaCl 10% or 30mL Ca^{2+} Gluconate 10%)* 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 10^9/L

Blood Bank Roles

- Process urgent group and screen
- Liase 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 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

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