ALBERTA PRECISION LABORATORIES
Leaders in Laboratory Medicine

Calgary Massive Hemorrhage Protocol (MHP) - Adult

Identify & Manage Bleeding
Collect Type & Screen, CBC and Coagulation Samples – Deliver **STAT**

Hemorrhaging state requiring transfusion of blood components in excess of one blood volume within a 24 hour period.

i.e.: 4U RBCs transfused in ≤ 4 hours **and** ongoing major bleeding
OR
6U RBCs transfused in ≤ 24 hours **and** ongoing major bleeding

TO ORDER MHP- CALL:
FMC TM 41367
SHC TM 61330
RGH TM 33409
PLC TM 34628

MRHP ORDERS MHP ACTIVATION

Asign one clinical team member to **PHONE** request MHP from TM (NO Order in Clinical Information System [CIS] to activate MHP)
Provide patient name and sex, RHRN, location, ordering physician
Record name of TM technologist you are speaking with
TM to arrange for pick up of pack (send unit staff for expedited pick up)

Tranexamic acid 1 gm IV bolus, then 1 gm IV infused over 8 hours[3]
Within 3 hours of injury

MHP Contents
√ RBCs – 4 Units

√ FP- 4 Units (2 AB if no TS)

√ Platelets–1st pack and all subsequent packs for Cardiac/ Vascular/If requested,
2nd pack and evenly numbered packs for others.

√Fibrinogen – 1st pack - 2 g (4g for PPH)

Warm RBCs and Plasma using level 1 rapid infuser
DO NOT WARM PLATELETS
*LEAVE RBC/PLASMA IN BOX UNTIL READY TO TRANSFUSE

Q30 Minutes

Hemostasis & resolution of coagulopathy?

No

Clinical Team member calls TM for another MHP pack.

Yes

Stop MHP
- Notify TM & return any Unused blood asap
- Resume standard ordering practices in CIS.
- Enter *Clinical Communication: MRHP to Nurse:* **list** all Blood products transfused during MHP

REPEAT CBC, INR, PTT & fibrinogen
►STAT hand delivery of samples is best

Q1h→ Consider repeat ionized Ca and K+

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Points of Emphasis

COMMUNICATION IS VITAL

CONTACT other team members/departments to confirm MHP activation, sending of samples, or receipt of box. Pack is to follow patient.

Contact #'s

FMC	TM 41367	Accession 44066
SHC	TM 61330	Accession 61330
RGH	TM 33409	Accession 38747
PLC	TM 34628	Accession 34637

FAST SAMPLING IS KEY

STAT hand delivery of samples by a clinical team member is **best** (alt. for ED may use tube).
Alert Accessioning Dept of urgency of testing.
Above delivery of lab* samples facilitates results in HIS in 25 minutes (*CBC, INR, PTT and fibrinogen).

CONTENTS OF PACK:

RBC- 4 Units (Group O if no TS)

FP – 4 Units (2 AB if no TS)

Platelets – 1st pack for Cardiac/Vascular/if requested. 2nd pack for all others. Every second pack thereafter.

Fibrinogen – 2 grams in 1st pack (4g in 1st Pack for PPH patients)

AVOID WASTAGE

Use products effectively.
Packs can be customized. Consider transfused totals and patient needs; inform TM of needs when ordering packs.

Do not warm or cool platelets.
Return unused blood/packs to TM ASAP.

ENSURE TRACKING OF PRODUCTS

Clinical team must tally transfused totals and record in chart and HIS (see Post MHP).

Initial Interventions

√ Intravenous access→ 2 large bore IVs &/or CVC
√ Crystalloid→ 3:1 ratio to blood loss
√ Labs → **T&S, CBC, coagulation, lytes, ionized Ca, acid/base status**
√ Continuous monitoring → VS, Intake/Output
√ Aggressive re-warming
√ Prevent/reverse acidosis
√ Correct hypocalcemia →**CaCl 1 gm IV slowly**
√ Transfuse with unmatched RBCs on hand

Other Considerations

√ Heparin reversal → **Protamine 1 mg IV per 100 units heparin**
√ Warfarin reversal → **Prothrombin Complex 1500 units and Vitamin K 10 mg IV**
√ DOAC management → **Refer to HCS-115-01 Direct Oral Anticoagulants Guideline**
√ CRF & Von Willebrand's → **DDAVP 0.3 mcg/kg IV x1**
√ Intraoperative cell salvage

General Guidelines for Lab Based Blood Component Replacement in Adults

PRODUCT	THRESHOLD	DOSE
RBC	Aim for Hgb ≥ 100 in **bleeding coagulopathic** patient	Hgb ≥ 70 is sufficient in most stable non-bleeding patients
FP	If INR greater than 1.5	Give 2 units of FP
Platelets	If less than 100,000 or projected to be soon less than 100,000	Give 1 dose platelets. Platelets should drip freely. **Do not** use a warmer or pressurized infuser.
Fibrinogen Concentrate	Fibrinogen less than 1.5 – 2 g/L OR evidence of microvascular bleeding	The cut-off fibrinogen level for administration of FC is less than 1.5 g/L (excluding cardiac surgery and PPH patients) and post-administration target for Fibrinogen Level is 2.0g/L or higher.