ADULT PATIENTS, DEFINITIVE CARE AT HOSPITAL **for educational purposes only, not for clinical use**

EXAMPLE OF MASSIVE HEMORRHAGE PROTOCOL (MHP) CHECKLIST (for educational purposes only, not for clinical use)

TIME	ACTION	INITIALS
ACTIVATION & PACK 1 (date _ _ / _ _ _ / _ _ time _ _ /_ _)		
	MHP Lead RN: _____	
	Call to hospital locating (ext. - - - -) to activate **CODE TRANSFUSION**	
	Provide patient number, name, sex, age, location, and information regarding patient use of antiplatelet or anticoagulants to blood bank at ext. - - - - Antiplatelets ☐ Yes; Anticoagulant ☐ Yes, drug name:_____	
	☐ Ensure identification band is affixed to patient	
	☐ Obtain group and screen sample	
	☐ Obtain baseline blood work	
	Tranexamic acid: Administer 2 gram iv bolus in 100 mL over 20 minutes. *Hold if: more than 3 hours from injury/onset of hemorrhage or given pre-hospital or pre-activation or patient has a gastrointestinal hemorrhage*	
	Hypothermia prevention: ☐ Measure and document patient temperature ☐ Obtain blood warmer for all infusions ☐ If patient temperature less than 36^{o}C start active warming	
	Definitive hemorrhage control: Notify if required: ☐ Operating Room ☐ Interventional Radiology ☐ Gastroenterology	
	Obtain 1st MHP pack (if not obtained before activation): Pack arrival time (_ _/_ _) ☐ ☐ ☐ ☐ 4 units Red Cells (RBCs) *Use Rh-negative blood only for females under 45 years* *Avoid additional boluses or infusions of crystalloid except on physician order*	
	☐ **Platelets:** If platelet count below 50 x10^{9}/L or patient on an antiplatelet drug, transfuse 1 pool of platelets	
	☐ **Fibrinogen:** if fibrinogen less than 1.5 g/L, 4 grams of fibrinogen concentrate over 5 min by iv push	
	☐ **Calcium:** 1g Calcium Chloride or 3g Calcium Gluconate iv push after pack 1	
	Anticoagulant reversal: ☐ If Warfarin: PCC 2000 IU iv over 10 minutes AND ☐ Vitamin K 10 mg iv ☐ If Xa inhibitors (e.g., apixaban, rivaroxaban): PCC 2000 IU iv over 10 minutes ☐ If Dabigatran: Idarucizumab 5 grams iv over 10 minutes ☐ If Heparins: consult Pharmacy for protamine dosing	
PACK 2 (time _ _ /_ _)		
	☐ Obtain hour one blood work	
	☐ Review last set of blood work to ensure at target: Hemoglobin greater than 80 g/L, INR less than 1.8, fibrinogen greater than 1.5 g/L, platelets greater than 50x10^{9}/L	
	☐ Measure and document patient temperature ☐ If patient temperature less than 36^{o}C start active warming	
	Obtain 2nd MHP pack (if needed): Transfusions based on laboratory measures where feasible	

	☐☐☐☐ 4 units Red Blood Cells ☐☐☐☐ 4 units of Frozen Plasma	
	☐ **Platelets:** if platelet count below 50 x10^9/L, 1 pool of platelets	
	☐ **Fibrinogen:** if fibrinogen less than 1.5 g/L, 4 grams of fibrinogen concentrate over 5 min	
	Anticoagulant reversal (only if ongoing hemorrhage): ☐ If Xa inhibitors (second dose): PCC 2000 IU iv over 10 minutes	
	☐ **Calcium:** 1g Calcium Chloride or 3g Calcium Gluconate iv push after pack 2	
PACK 3 (time _ _ /_ _)		
	☐ Obtain hour 2 blood work	
	☐ Review last set of blood work to ensure at target	
	☐ Measure and document patient temperature ☐ If patient temperature less than 36°C start active warming	
	Obtain 3rd MHP pack (if needed) Transfusions based on laboratory measures where feasible ☐☐☐☐ 4 Units Red Blood Cells ☐☐ 2 Units of Frozen Plasma ☐ 4 grams of fibrinogen concentrate over 5 min	
	☐ **Platelets:** if platelet count below 50 x10^9/L, 1 pool of platelets	
	☐ **Calcium:** 1g Calcium Chloride or 3g Calcium Gluconate iv push after pack 3	
PACK 4 (time _ _ /_ _)		
	☐ Obtain hour 3 blood work	
	☐ Review last set of blood work to ensure at target	
	☐ Measure and document patient temperature ☐ If patient temperature less than 36°C start active warming	
	Obtain 4th pack (if needed) Transfusions based on laboratory measures where feasible ☐☐☐☐ 4 units of Red Blood Cells ☐☐ 2 units of Frozen Plasma	
	☐ **Platelets:** if platelet count below 50 x10^9/L, 1 pool of platelets	
	☐ **Fibrinogen:** if fibrinogen less than 1.5 g/L, 4 grams of fibrinogen concentrate over 5 min	
	☐ **Calcium:** 1g Calcium Chloride or 3g Calcium Gluconate iv push after pack 4	
PACK 5 (time _ _ /_ _)		
	☐ Obtain hour 4 or greater blood work	
	☐ Review last set of blood work to ensure at target	
	☐ Measure and document patient temperature ☐ If patient temperature less than 36°C commence active warming	
	Obtain 5th (if needed) Transfusions based on laboratory measures where feasible ☐☐☐☐ 4 units of Red Blood Cells per pack (RBCs) ☐☐ 2 units of Frozen Plasma	
	☐ **Platelets:** if platelet count below 50 x10^9/L, 1 pool of platelets	
	☐ **Fibrinogen:** if fibrinogen less than 1.5 g/L, 4 grams of fibrinogen concentrate over 5 min	

	☐ **Calcium:** 1g Calcium Chloride or 3g Calcium Gluconate iv push after each pack	
TERMINATION (time _ _ /_ _)		
	Once hemorrhage control is obtained and patient is hemodynamically stable call blood bank and the hematology laboratories to terminate the protocol	
	☐ Measure and document patient temperature	
	☐ Return all unused blood products in appropriate storage containers	
	☐ Complete this form and place in patient chart	
	☐ Complete handover SBAR tool below with receiving team	

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HANDOVER SBAR TOOL FOR HANDOVER TO THE CRITICAL CARE TEAM
(Time _ _ /_ _)

S: SITUATION (Relay the following)	HANDOVER NOTES
☐ Patient age, sex, weight	
☐ Context (trauma ± TBI, surgery, or other)	
B: BACKGROUND (Relay the following)	
☐ TXA administration ____ grams	
☐ Total numbers of blood products ____ RBC ____ Plasma ____ PLTs ____ g Fibrinogen _____ IU PCC	
☐ Total (L) crystalloid and/or colloid and urine output ____ L of non-blood product fluid	
☐ IV access and need for vasopressors	
☐ For trauma, external/internal bleeding ± TBI management	
☐ Consultant(s) involved (e.g. surgery, radiology or gastroenterology)	
☐ Complications (hypothermia, coagulopathy, acidosis or arrhythmias)	
A: ASSESSMENT (Relay the following)	
☐ Hemodynamic status (stable or unstable, vitals and temperature)	
☐ Definitive hemorrhage control achieved? YES / NO	
☐ Critical labs (specify) and latest blood work results Hb ____ PLT ____ INR ____ fibrinogen ____ lactate ____ Calcium ____	
☐ Availability of blood products from blood bank/coolers at bedside	
R: RECOMMENDATION (Consider the following)	
☐ Consider need for additional blood products since last set of labs	
☐ Consider need for further consultation, tests and drug re-dosing	