

ADULT PATIENTS, DEFINITIVE CARE AT HOSPITAL

To be repeated on each page

MASSIVE HEMORRHAGE
PROTOCOL (MHP) CHECKLIST

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 <input type="checkbox"/> Yes; Anticoagulant <input type="checkbox"/> Yes, drug name: _____	
	<input type="checkbox"/> Ensure identification band is affixed to patient	
	<input type="checkbox"/> Obtain group and screen sample	
	<input type="checkbox"/> Obtain baseline blood work	
	Tranexamic acid: Administer 2 gram iv bolus in 100 mL over 20 minutes. <i>Hold if: more than 3 hours from injury/onset of hemorrhage or given pre-hospital or pre-activation or patient has a gastrointestinal hemorrhage</i>	
	Hypothermia prevention: <input type="checkbox"/> Measure and document patient temperature <input type="checkbox"/> Obtain blood warmer for all infusions <input type="checkbox"/> If patient temperature less than 36°C start active warming	
	Definitive hemorrhage control: Notify if required: <input type="checkbox"/> Operating Room <input type="checkbox"/> Interventional Radiology <input type="checkbox"/> Gastroenterology	
	Obtain 1st MHP pack (if not obtained before activation): Pack arrival time (_/ _/ _) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 4 units Red Cells (RBCs) <i>Use Rh-negative blood only for females under 45 years</i> <i>Avoid additional boluses or infusions of crystalloid except on physician order</i>	
	<input type="checkbox"/> Platelets: If platelet count below 50 x10 ⁹ /L or patient on an antiplatelet drug, transfuse 1 pool of platelets	
	<input type="checkbox"/> Fibrinogen: if fibrinogen less than 1.5 g/L, 4 grams of fibrinogen concentrate over 5 min by iv push	
	<input type="checkbox"/> Calcium: 1g Calcium Chloride or 3g Calcium Gluconate iv push after pack 1	
	Anticoagulant reversal: <input type="checkbox"/> If Warfarin: PCC 2000 IU iv over 10 minutes AND <input type="checkbox"/> Vitamin K 10 mg iv <input type="checkbox"/> If Xa inhibitors (e.g., apixaban, rivaroxaban): PCC 2000 IU iv over 10 minutes <input type="checkbox"/> If Dabigatran: Idarucizumab 5 grams iv over 10 minutes <input type="checkbox"/> If Heparins: consult Pharmacy for protamine dosing	
PACK 2 (time __/ __/ __)		
	<input type="checkbox"/> Obtain hour one blood work	
	<input type="checkbox"/> 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	
	<input type="checkbox"/> Measure and document patient temperature <input type="checkbox"/> If patient temperature less than 36°C start active warming	
	Obtain 2nd MHP pack (if needed): Transfusions based on laboratory measures where feasible	

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

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<input type="checkbox"/> 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	
<input type="checkbox"/> Measure and document patient temperature	
<input type="checkbox"/> Return all unused blood products in appropriate storage containers	
<input type="checkbox"/> Complete this form and place in patient chart	
<input type="checkbox"/> Complete handover SBAR tool below with receiving team	

HANDOVER SBAR TOOL FOR HANDOVER TO THE CRITICAL CARE TEAM

(Time __/__/__)

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