



University of Washington Medical Center 1959 NE Pacific Street. Seattle, WA 98195 Transfusion Services Laboratory Policies and Procedures Manual	Original Effective Date: 10-28-2020 Revision Effective Date: 03-15-2022	Number: PC-0081.04
TITLE: Massive Transfusion Protocol & Emergency Release of Blood Components at Northwest Campus		

PURPOSE:

To provide instruction for preparing and releasing universal donor products include uncrossmatched group O red blood cell components (RBC), plasma, cryoprecipitate and platelets in emergency situations including bleeding events such as massive transfusion protocol (MTP), OB Hemorrhage.

PRINCIPLE & CLINICAL SIGNIFICANCE:

The laboratory must have a process in place to provide blood components including uncrossmatched RBCs for rapid delivery to patient care areas during bleeding emergencies

Clinical Significance:

Rapid replacement of RBCs during bleeding events can be critical for preventing brain damage and cardiac arrest associated with hemorrhage. Platelets, plasma, and cryoprecipitate are used to support coagulation and hemostasis.

POLICIES:

- All orders for uncrossmatched RBCs must be authorized by a physician with a signed statement the patient’s condition warrants transfusion prior to the completion of compatibility testing.
 - An *Emergency Release of Uncrossmatched Blood* form is filled out and sent with uncrossmatched RBC for provider signature verifying transfusion is necessary prior to completion of testing
- NW staff will notify the TSL when the following occur and the TSL will notify the TSL Physician On-Call.
 - Activation of an MTP or OB bleed
 - Release of uncrossmatched RBCs to patients with antibodies
- TSL Medical Director On-Call will evaluate the need for Rh immune globulin when Rh positive cellular components are transfused to Rh negative recipients

Red Blood Cell Components

- **UNCROSSMATCHED** Group O universal donor RBC components will be provided in the initial response of MTP order - [refer to Table 1](#). Once the initial response is made and pretransfusion testing is complete, crossmatched RBCs will be provided
 - Rh type is selected based on patient’s historical Rh type. When a historical Rh is not available, Rh is selected based on the patient’s sex and age – [refer to Table 1](#)
 - Both O positive and O negative RBC are available in the HaemoBank for issue as uncrossmatched in bleeding emergencies

- The ability to select uncrossmatched RBCs from the HaemoBank is based on age and sex of the patient and patient’s Rh when known. To select the correct uncrossmatched RBC from the HaemoBank refer to section **Selecting Uncrossmatched RBCs from HaemoBank**, Step 6
- Red cell components ordered as emergency outside of MTP activations can be initially issued as uncrossmatched or crossmatched if time allows

TABLE 1: Selection of UNCROSSMATCHED RBC Components for Bleeding Emergencies

Patient Rh is Known	Then	
YES	Patient Rh	Select
	Rh Negative	O NEGATIVE
	Rh Positive	Select based on Patient Age and Gender
NO	Patient Age and Gender	Select
	<ul style="list-style-type: none"> • Females < 50 years old • Males <15 years old • Unknown 	O NEGATIVE
	<ul style="list-style-type: none"> • Females ≥ 50 years old • Males ≥ 15 years old 	O POSITIVE

Plasma

- **Universal Group AB Donor Plasma** should be provided during bleeding emergencies when the issue of ABO identical or compatible plasma will cause delay – refer to [Table 2](#)

TABLE 2: Selection of PLASMA Components for Bleeding Emergencies

Plasma Compatibility Table				
Recipient Type	Plasma ABO			
	O	A	B	AB
O	✓	✓	✓	✓
A		✓		✓
B			✓	✓
AB				✓
unknown ABO, NTD, or patient <4 months of age				✓
✓ = compatibility between patient ABO and plasma ABO				

Platelet

- **The stock platelet unit available at NW campus can be provided to any patient regardless of ABO/ Rh, sex or age during a bleeding emergency**
- Platelets stocked at NW campus will meet the following requirements except in the event of inventory shortage
 - PAS- Platelet collected in platelet additive solution
 - Non- PAS platelets may be provided when PAS platelets are unavailable such as in a platelet shortage crisis and include apheresis platelet collected in plasma and pre-pooled platelets
 - Leukocyte-reduced considered CMV safe
 - Irradiated and/or Pathogen Reduced

Cryoprecipitate

- Cryoprecipitate may be given to adults without regard to ABO/Rh
- Infants **<4 months of age** should be issued type AB cryoprecipitate

Order for Blood Components during Bleed Emergency

- An electronic order (EPIC) or manual requisition for blood components should be received prior to components being released for transfusion.
- Blood components for MTP and bleeding emergencies may be prepared based on phone/verbal requests
- Order for an **MTP Pack** includes the following
 - **MTP Pack**
 - 4 RBC
 - 4 plasma
 - Platelet and cryoprecipitate are prepared upon request by the provider

Blood Product Pickup

- Person picking up the blood components must provide:
 - Patient's MRN
 - Patients full name
- Patient's name and MRN must be verified to match the order upon release to provider or care area
- The patient label or pick-up slip presented by the person running the components must be maintained at the transfusion medicine bench

SPECIMEN REQUIREMENTS:

Every attempt should be made to collect an EDTA specimen (6 ml) for Type and Screen from the patient prior to blood administration. If the patient has no ABO/Rh history from Montlake TSL in Sunquest, an ABO/Rh sample should also be collected

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REAGENTS/SUPPLIES/EQUIPMENT:

Reagents:	Supplies:	Equipment:
NA	<ul style="list-style-type: none"> • Emergency Release Transfusion Records • Emergency Release of Uncrossmatched Blood Form • Helmer plasma overwrap bags • HemoTemp Stickers 	<ul style="list-style-type: none"> • BB LIS • Helmer Plasma Thawer • Blood product transport cooler • Ice packs • NIST thermometer

QUALITY CONTROL:

NA

INSTRUCTIONS:


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- [APPENDIX 1: Select of Uncrossmatched RBCs from the HaemoBank](#)

Massive Transfusion Protocol Initiation

Step	Action	
1	Order placed	Then
	EPIC or manual requisition	Obtain the name of the MTP facilitator information when possible
	Phone or in person	<ul style="list-style-type: none"> • Obtain the following information from the MTP facilitator/ patient care provider and document on a Transfusion Services Test & Blood Product Request Form <ul style="list-style-type: none"> ○ Patient name ○ Patient MRN ○ Location of the patient including room number ○ Ordering physician ○ Ask whether cryoprecipitate or platelets are needed ○ Facilitator name and direct phone number where he/she can be reached • Perform a verbal read-back with the person placing the order • Give facilitator TAT of when products will be available and request that a runner be sent for product

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Step	Action						
	<ul style="list-style-type: none"> When order is placed over the phone or in person, the tech must call the Provider to place the order electronically if one is not made within half hour. Document time of call to Provider on the manual requisition. 						
2	<p>Open Sunquest, Blood Bank Inquiry (BBI)  and enter the patient MRN to obtain the following information:</p> <ul style="list-style-type: none"> Age Sex ABO/Rh -test result must be from Montlake TSL Is a current TSCR available for crossmatching Antibody history or Required transfusion attributes <table border="1"> <thead> <tr> <th>If</th> <th>Then</th> </tr> </thead> <tbody> <tr> <td>No clinically significant antibodies</td> <td>Go to the next step</td> </tr> <tr> <td>History of clinically significant alloantibodies</td> <td>Notify the patient's provider to determine if emergency release can be delayed until antigen negative units can be provided.</td> </tr> </tbody> </table>	If	Then	No clinically significant antibodies	Go to the next step	History of clinically significant alloantibodies	Notify the patient's provider to determine if emergency release can be delayed until antigen negative units can be provided.
If	Then						
No clinically significant antibodies	Go to the next step						
History of clinically significant alloantibodies	Notify the patient's provider to determine if emergency release can be delayed until antigen negative units can be provided.						
3	<p>Log into SmartTerm to generate patient demographic labels</p> <ul style="list-style-type: none"> Function: BAR Which medical center (H or U): U Select Labels and Forms Select Barcodes Select TSS Patient Demographic Label Enter Valid Printer: #3 NWH Trans Med Enter MRN#: Scan or manually enter Patient's MRN Is this correct? Confirm the patient's name enter [Y/N] Number of labels: Enter the desired number of labels (minimum of 30 labels) 						
4	Go to section Selecting Uncrossmatched RBCs from HaemoBank						

Selecting Uncrossmatched RBCs from HaemoBank

Step	Action
1	Log in to the HaemoBank by scanning your UWMC ID Badge or entering in your EID#
2	Touch <Touch here for emergency units>
3	Touch <Red Cells>
4	Enter Patient's MRN and touch <Search>

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Step	Action				
5	Verify the correct MRN is displayed when prompted to answer, "Correct patient?"				
	If	Then			
	Correct	Select "Yes"			
	Incorrect	Select "No" and go back to step 4			
6	Patient Rh Known	Then			
	YES	Patient Rh	Then		
		Rh Negative	Touch [Don't Know] button		
		Rh Positive	NOTE: Touching the "Don't Know" button will dispense O negative RBCs		
	NO	Patient Age & Gender	Then touch button	For	
		Females < 50 years old	[Female Younger than 50]	O Negative	
		Females ≥ 50 years old	[Female Older than 50]	O Positive	
		Males <15 years old	[Male Younger than 15]	O Negative	
Males ≥ 15 years old		[Male Older than 15]	O Positive		
Unknown		[Don't Know]	O Negative		
7	Enter the number of emergency units to dispense based on quantity of RBCs ordered				
	NOTE: The HaemoBank will release a maximum of 4 RBCs at a time. Repeat this section to remove more.				
8	Remove the RBC from the blue illuminated tray				
9	Scan the unit number				
	NOTE: A green check indicates the blood product matches what was expected and an Emergency Use Blood label will print				
10	Confirm the 'Emergency Use Blood' label printed successfully				
	If	Then			
	Successful	<ul style="list-style-type: none"> • Touch <Yes> • Adhere the Emergency Use Blood Label to the Transfusion Record rubber banded to the RBC • Go to next step 			
	Unsuccessful	<ul style="list-style-type: none"> • Touch <No> to print a new label 			


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Step	Action
11	Apply the following stickers to each RBC unit: <ul style="list-style-type: none"> • “Uncrossmatched” sticker • Activated HemoTemp sticker
12	Document the following on an <i>Emergency Release of Uncrossmatched Blood</i> form <ul style="list-style-type: none"> • Patient Name & MRN (may use Patient Demographic Label) • Unit Number and division (if applicable) for each RBC. DIN stickers should be used whenever available.
13	Photocopy the <i>Emergency Release of Uncrossmatched Blood</i> form to maintain in lab
14	Document the following on a <i>Downtime Issue Log</i> Patient Name (may use Patient Demographic Label patient name and MRN) <ul style="list-style-type: none"> • Patient MRN • Patient Location • Unit Number and division (when applicable) • Unit E code <p>NOTE: Patient ID may be document for one blood component and filled in for the others after issue</p>
15	Call facilitator to notify RBCs are ready for pickup if a runner is not already present
16	Go to section Issuing Emergency Blood


Preparing Emergency Plasma and Cryoprecipitate

Step	Action						
1	Select the number AB plasma or cryoprecipitate ordered NOTE: Thaw plasma prior to cryoprecipitate if space is limited in the plasma thawer.						
	<table border="1"> <thead> <tr> <th>If</th> <th>Then</th> </tr> </thead> <tbody> <tr> <td>No ABO/Rh on file</td> <td> <ul style="list-style-type: none"> • Select AB plasma • Thaw and relabel plasma and/or cryoprecipitate according to SOP Ordering and Processing Plasma and Cryoprecipitate at Northwest Campus • Go to next step <p>NOTE: Only AB plasma maybe issued using the <i>Downtime Issue Log</i> except when LIS is out of service</p> </td> </tr> <tr> <td>ABO/Rh is on file and time allows for electronic allocation by Montlake TSL</td> <td> <ul style="list-style-type: none"> • Select type specific or ABO compatible plasma • Thaw, relabel, and allocate plasma/cryoprecipitate according to SOP Ordering and Processing Plasma and Cryoprecipitate at Northwest Campus </td> </tr> </tbody> </table>	If	Then	No ABO/Rh on file	<ul style="list-style-type: none"> • Select AB plasma • Thaw and relabel plasma and/or cryoprecipitate according to SOP Ordering and Processing Plasma and Cryoprecipitate at Northwest Campus • Go to next step <p>NOTE: Only AB plasma maybe issued using the <i>Downtime Issue Log</i> except when LIS is out of service</p>	ABO/Rh is on file and time allows for electronic allocation by Montlake TSL	<ul style="list-style-type: none"> • Select type specific or ABO compatible plasma • Thaw, relabel, and allocate plasma/cryoprecipitate according to SOP Ordering and Processing Plasma and Cryoprecipitate at Northwest Campus
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Step	Action
	<ul style="list-style-type: none"> Issue allocated plasma/cryoprecipitate according to SOP <i>Issuing Blood Components at Northwest Campus</i>
2	<p>Print a "blank" Sunquest Transfusion Record for each component</p> <ul style="list-style-type: none"> Log into SQ location: NW Open Blood Product Entry  Click on 'Print Blank Unit Tag' in the bottom left-hand corner of the screen Scan unit # and Ecode Click "OK" Click "OK" when the message "A unit tag request had been generated for unit# and Ecode" appeared
3	Attached a patient demographic label (generated in SmarTerm) to the top portion of the Transfusion Record(s)
4	<p>Document the following on a <i>Downtime Issue Log</i> Patient Name (may use Patient Demographic Label patient name and MRN)</p> <ul style="list-style-type: none"> Patient MRN Patient Location Unit Number and division (when applicable) Unit E code <p>NOTE: Patient ID may be document for one blood component and filled in for the others after issue</p>
5	Notify the facilitator the plasma and/or cryoprecipitate are ready for pickup if a runner is not already present
6	Go to section Issuing Emergency Blood

Preparing Emergency Platelets

Step	Action
1	Select any available platelet from the platelet shaker
2	<p>Print a "blank" transfusion record for the platelet unit</p> <ul style="list-style-type: none"> Log into SQ location: NW Open Blood Product Entry  Click on 'Print Blank Unit Tag' in the bottom left-hand corner of the screen Scan unit # and Ecode Click "OK" Click "OK" when message shows up "A unit tag request had been generated for unit# and Ecode"

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Step	Action
3	Attached a patient demographic label (generated in SmarTerm) to the top portion of the Transfusion Record(s)
4	Document the following on a <i>Downtime Issue Log</i> Patient Name (may use Patient Demographic Label patient name and MRN) <ul style="list-style-type: none"> • Patient MRN • Patient Location • Unit Number and division (when applicable) • Unit E code <p>NOTE: Patient ID may be document for one blood component and filled in for the others after issue</p>
5	Notify the facilitator platelets are ready for pickup if a runner is not already present
6	Go to Section: Issuing Emergency Blood

Issuing Emergency Blood

Step	Action	
1	If issuing	Then
	Uncrossmatched or Universal Donor components not unallocated to the patient in Sunquest	Go to next step
	Crossmatched RBC or plasma, cryoprecipitate and platelets allocated to the patient in Sunquest	Go to and follow SOP Issuing Blood Components at Northwest Campus for issue instruction
2	Perform and document the visual inspection of each product on the <i>Downtime Issue Log</i> refer to SOP Visual Inspection of Blood Components at Northwest Campus	
3	If issuing	Then
	At room temp	Go to next step
	In a cooler	Pack RBCs and thawed plasma in Blood Transport Coolers according to SOP Issuing Blood Components in a Blood Cooler at Northwest Campus
4	Perform read-back of patient name and MRN with person (runner) picking up the blood components. <ul style="list-style-type: none"> • The runner will read out aloud and then spell the patient's full name from the pick-up slip or patient label brought by the runner while the tech compares to the product order and downtime log. • The tech will read back and then spell the patient's full name and read MRN from the downtime log while the runner compares to the patient label or pick-up slip. 	

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Step	Action	
5	If runner presents	Then
	Pick-Up slip	Attach the Pick-Up slip to the component requisition
	Patient Label	Adhere the label to the Downtime Issue Log or a blank Pick-Up slip.
6	<p>To expedite the issuing of emergency blood products, document the following on the <i>Downtime Issue Log</i> and fax to UW TSL:</p> <ul style="list-style-type: none"> • Time of issue • Issued by (issuing tech ID) • Issued To (Name or initials of runner and cooler # if issuing in a cooler) <p>NOTE: If all components listed on the <i>Downtime Issue Log</i> are issued at the same time, it is acceptable to document the above information for one product and give the components to the runner to take before documenting the information for rest of the components.</p> <p>NOTE: It is not acceptable to draw lines through columns to indicating the information is the same. Each field must be complete.</p>	
7	<ul style="list-style-type: none"> • Send original <i>Emergency Release of Uncrossmatched Blood</i> form with runner for the physician to sign. • Maintain the copy with the request for blood products and <i>Downtime Issue Log</i>. 	
8	<p>Call ML TSL and notify them of the following:</p> <ul style="list-style-type: none"> • MTP/OB activation and if patient has a history of antibodies • Downtime Issue Log is being faxed to Montlake TSL 	
9	<p>Fax the completed <i>Downtime Issue Log</i> to Montlake TSL. TSL will enter documentation into Sunquest</p>	

CALCULATIONS/INTERPRETATIONS/RESULTS REPORTING/NORMAL VALUES/CRITICAL VALUES:

The ordering physician and the TSL MD must be notified immediately of any incompatible crossmatches detected following release of uncrossmatched blood

CALIBRATION:

NA

NOTES AND LIMITATIONS:

- Irradiated components are not required due to the emergency release but are stocked for convenience due to the high percentage of patients with Irradiation requirements
- The “BAR” function in SmarTerm can be used to print patient demographic labels for use on the *Transfusion Record* and the *Emergency Release of Uncrossmatched Blood Form*
- All required pretransfusion testing should be completed as soon as possible upon sample receipt

REFERENCES:

- Standards for Blood Banks and Transfusion Services, AABB Press, Bethesda, MD. Current Edition.
- Technical Manual, AABB Press, Bethesda, MD. Current Edition.

RELATED DOCUMENTS:

FORM *Emergency Release of Uncrossmatched Blood* UH3934

FORM *Transfusion Record* UH3363 (Sunquest)

FORM *Transfusion Record* UH3919 (HaemoBank)

FORM *Downtime Issue Log*

SOP *Issuing Blood Components at Northwest Campus*

SOP *Ordering and Processing Plasma and Cryoprecipitate at Northwest Campus*

SOP *Issuing Blood Components in a Blood Cooler at Northwest Campus*

SOP *Returning Issued Blood Components to Inventory at Northwest* SOP

SOP *Quarantine and Final Disposition of Blood Components at Northwest Campus*

SOP *Visual Inspection of Blood Components at Northwest Campus*

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UWMC SOP Approval:			
UWMC CLIA Medical Director	_____	Date	_____
	Andrew Bryan, MD		
Transfusion Service Manager	_____	Date	_____
	Nina Sen		
QA Manager	_____	Date	_____
	NA		NA
Transfusion Service Medical Director	_____	Date	_____
	Monica Pagano, MD		
UWMC Biennial Review:			
	_____	Date	_____
	_____	Date	_____

REVISION HISTORY:
03/20/2021: Revised to add instructions for selecting Rh negative RBCs for patients know to be Rh negative. Removed and moved section for returning products to SOP Returning Issued Blood Components to Inventory at Northwest Campus. Minor changes for EPIC implementation.
05/17/2021: Added instruction for obtaining signed MTP order for verbally activated protocol.
03/4/2021: Revised to allow uncrossmatched blood to issue during initial MTP response.

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APPENDICES:

APPENDIX 1: Selection of Uncrossmatched RBCs from the HaemoBank

Patient Rh Known	Then		
YES	Patient Rh	Then	
	Rh Negative	Touch [Don't Know] button NOTE: Touching the "Don't Know" button will dispense O negative RBCs	
	Rh Positive	Select based on Patient Age & Gender	
NO	Patient Age & Gender	Then touch button	For
	Females < 50 years old	[Female Younger than 50]	O Negative
	Females ≥ 50 years old	[Female Older than 50]	O Positive
	Males <15 years old	[Male Younger than 15]	O Negative
	Males ≥ 15 years old	[Male Older than 15]	O Positive
	Unknown	[Don't Know]	O Negative

- Copy of appendix attached to HaemoBank