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:	Number: PC-0081.03

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 should be provided when pretransfusion testing is not complete and/or there is not time to crossmatch RBCs - refer to Table 1
    - 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

- RBC components already crossmatched in the HaemoBank for the patient should be issued first.
- If the patient has a current type and screen and patient qualifies for electronic crossmatch, crossmatched RBCs may be requested from UW TSL provided it does not cause delay issuing RBCs

- 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

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**
	• Females < 50 years old • Males <15 years old • Unknown	O NEGATIVE
	• 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

REAGENTS/SUPPLIES/EQUIPMENT:

Reagents:	Supplies:	Equipment:
NA	• Emergency Release Transfusion Records • Emergency Release of Uncrossmatched Blood Form • Helmer plasma overwrap bags • HemoTemp Stickers	• BB LIS • Helmer Plasma Thawer • Blood product transport cooler • Ice packs • NIST thermometer

QUALITY CONTROL:
NA

INSTRUCTIONS:

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Massive Transfusion Protocol Initiation

Step	Action	
	Order placed	**Then**
	EPIC or manual requisition	Obtain the name of the MTP facilitator information when possible
1	Phone or in person	• Obtain the following information from the MTP facilitator/ patient care provider and document on a Transfusion Services Test & Blood Product Request Form ○ Patient name ○ Patient MRN ○ Location of the patient including room number ○ Ordering physician ○ B~~lood products needed~~ Ask whether cryo or platelets are ~~also~~ needed

Step	Action
	○ 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 • When order is placed over the phone or in person, the tech must call the Provider to place the order electronically if one isn't made within half hour. Document time of call to Provider on the manual requisition.
2	Open Sunquest, **Blood Bank Inquiry (BBI**  **)** and enter the patient MRN to obtain the following information: • Age • Sex • ABO/Rh -test result must be from Montlake TSL • Is a current TSCR available for crossmatching • Antibody history or • Required transfusion attributes
3	Log into SmartTerm to generate patient demographic labels • 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

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.

Selecting Uncrossmatched RBCs from HaemoBank

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>1</td><td>Log in to the HaemoBank by scanning your UWMC ID Badge or entering in your EID#</td></tr>
<tr><td>2</td><td>Touch <Touch here for emergency units></td></tr>
<tr><td>3</td><td>Touch <Red Cells></td></tr>
<tr><td>4</td><td>Enter Patient’s MRN and touch <Search></td></tr>
<tr><td>5</td><td>Verify the correct MRN is displayed when prompted to answer, “Correct patient?”
<table>
<tr><th>If</th><th>Then</th></tr>
<tr><td>Correct</td><td>Select “Yes”</td></tr>
<tr><td>Incorrect</td><td>Select “No” and go back to step 4</td></tr>
</table></td></tr>
<tr><td>6</td><td>
<table>
<tr><th>Patient Rh Known</th><th colspan="3">Then</th></tr>
<tr><td rowspan="3">YES</td><td>Patient Rh</td><td colspan="2">Then</td></tr>
<tr><td>Rh Negative</td><td colspan="2">Touch [Don’t Know] button

NOTE: Touching the “Don’t Know” button will dispense O negative RBCs</td></tr>
<tr><td>Rh Positive</td><td colspan="2">Select based on Patient Age & Gender</td></tr>
<tr><td rowspan="6">NO</td><td>Patient Age & Gender</td><td>Then touch button</td><td>For</td></tr>
<tr><td>Females < 50 years old</td><td>[Female Younger than 50]</td><td>O Negative</td></tr>
<tr><td>Females ≥ 50 years old</td><td>[Female Older than 50]</td><td>O Positive</td></tr>
<tr><td>Males <15 years old</td><td>[Male Younger than 15]</td><td>O Negative</td></tr>
<tr><td>Males ≥ 15 years old</td><td>[Male Older than 15]</td><td>O Positive</td></tr>
<tr><td>Unknown</td><td>[Don’t Know]</td><td>O Negative</td></tr>
</table></td></tr>
<tr><td>7</td><td>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.</td></tr>
<tr><td>8</td><td>Remove the RBC from the blue illuminated tray</td></tr>
<tr><td>9</td><td>Scan the unit number

NOTE: A green check indicates the blood product matches what was expected and an Emergency Use Blood label will print</td></tr>
</table>

Step	Action
10	Confirm the 'Emergency Use Blood' label printed successfully **If** / **Then** Successful: • Touch <Yes> • Adhere the Emergency Use Blood Label to the Transfusion Record attach to the RBC • Go to next step Unsuccessful: • Touch <No> to print a new label
11	Apply the following stickers to each RBC unit: • "Uncrossmatched" sticker • Activated HemoTemp sticker
12	Document the following an *Emergency Release of Uncrossmatched Blood* form • 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 *Emergency Release of Uncrossmatched Blood* form to maintain in lab
14	Document the following on a Downtime *Issue Log* Patient Name (may use Patient Demographic Label patient name and MRN) • Patient MRN • Patient Location • Unit Number and division (when applicable) • Unit E code **NOTE:** Patient ID may be document for one blood component and filled in for the others after issue
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. **If** / **Then** No ABO/Rh on file and/or time does not allow for electronic: • Select AB plasma • Thaw and relabel plasma and/or cryoprecipitate according to SOP ***Ordering and Processing Plasma and Cryoprecipitate at Northwest Campus***

Step	Action
	allocation by Montlake TSL: • Go to next step **NOTE:** Only AB plasma maybe issued using the *Downtime Issue Log* except when LIS is out of service
	ABO/Rh is on file and time allows for electronic allocation by Montlake TSL: • 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*** • Issue allocated plasma/cryoprecipitate according to SOP ***Issuing Blood Components at Northwest Campus***
2	Print a "blank" Sunquest Transfusion Record for each component • 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	Document the following on a *Downtime Issue Log* Patient Name (may use Patient Demographic Label patient name and MRN) • Patient MRN • Patient Location • Unit Number and division (when applicable) • Unit E code **NOTE:** Patient ID may be document for one blood component and filled in for the others after issue
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

Step	Action
2	Print a "blank" transfusion record for the platelet unit • 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
3	Attached a patient demographic label (generated in SmarTerm) to the top portion of the Transfusion Record(s)
4	Document the following on a *Downtime Issue Log* Patient Name (may use Patient Demographic Label patient name and MRN) • Patient MRN • Patient Location • Unit Number and division (when applicable) • Unit E code **NOTE:** Patient ID may be document for one blood component and filled in for the others after issue
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 *Downtime Issue Log* 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***

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td></td><td><table><tr><td></td><td>Components in a Blood Cooler at Northwest Campus</td><td></td></tr></table></td></tr>
<tr><td>4</td><td>Perform read-back of patient name and MRN with person (runner) picking up the blood components.
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.</td></tr>
<tr><td>5</td><td><table><tr><th>If runner presents</th><th>Then</th></tr><tr><td>Pick-Up slip</td><td>Attach the Pick-Up slip to the component requisition</td></tr><tr><td>Patient Label</td><td>Adhere the label to the Downtime Issue Log or a blank Pick-Up slip.</td></tr></table></td></tr>
<tr><td>6</td><td>To expedite the issuing of emergency blood products, document the following on the Downtime Issue Log and fax to UW TSL:
Time of issue
Issued by (issuing tech ID)
Issued To (Name or initials of runner and cooler # if issuing in a cooler)
NOTE: If all components listed on the Downtime Issue Log 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.

NOTE: It is not acceptable to draw lines through columns to indicating the information is the same. Each field must be complete.</td></tr>
<tr><td>7</td><td>Send original Emergency Release of Uncrossmatched Blood form with runner for the physician to sign.
Maintain the copy with the request for blood products and Downtime Issue Log.</td></tr>
<tr><td>8</td><td>Call ML TSL and notify them of the following:
MTP/OB activation and if patient has a history of antibodies
Downtime Issue Log is being faxed to Montlake TSL</td></tr>
<tr><td>9</td><td>Fax the completed Downtime Issue Log to Montlake TSL. TSL will enter documentation into Sunquest</td></tr>
</table>

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*

UWMC SOP Approval:			
CLIA Medical Director	Mark H. Wener, MD	Date	
Transfusion Service Manager	Nina Sen	Date	
Transfusion Service Compliance Analyst	Christine Clark	Date	
Transfusion Service Medical Director	Monica B. Pagano, MD	Date	
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.

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*