



## Obstetrical (OB) Hemorrhage Guidelines

This document has been prepared by the Puget Sound Blood Center Transfusion Safety and Patient Blood Management Department to provide information necessary to obtain the appropriate blood components for emergent administration in obstetric patients. The document provides guidelines for facilitating timely and adequate replacement of massive/rapid blood loss with appropriate blood components where the Puget Sound Blood Center is the transfusion service. Guidelines are written to assist with reducing the incidence of intractable coagulopathy, turn-around-time of component delivery, wastage of components, and unnecessary ordering; all the while ensuring the correct patient receives the correct blood component, in the correct amount, expedited in the safest and most efficient way.

Note: These guidelines are meant to provide supplemental information and education. The document is not binding nor does it confer rights or responsibilities related to the practice of medicine. This document does not override medical judgment or institutional policies and may be subject to change without notice.

### **GENERAL GUIDELINES:**

- Evaluate bleeding risk upon admission.
  - Low risk patients draw a hold tube.
  - Medium risk patients draw a Type and Screen.
    - Hospitals with HemoSafes will collect a Type and Screen to determine Hemosafe eligibility.
  - High Risk patients draw a Type and Crossmatch for 2 or more units of red blood cells.
    - A specific Type and Crossmatch for 4 RBC units should be placed if patient is not Hemosafe eligible. (Patient is not eligible for Hemosafe if she has a positive red cell antibody screen.)
- Any member of the patient care team may make the verbal inquiry if activating the bleeding emergency protocol is indicated. However, a Licensed Independent Provider (LIP) must order blood components.
- An “OB Hemorrhage Pack” is at the highest level of priority of orders at the Puget Sound Blood Center.
- In a life-threatening emergency, the priority is to get blood components to the patient as quickly as possible. When an OB Hemorrhage (OBH) Protocol is activated and an OB Hemorrhage Pack is ordered, stock uncrossmatched Group O Negative Red Blood Cells

(RBC) will be issued unless type specific or type specific and crossmatched units are immediately available on site.

- The hospital laboratory stores stock uncrossmatched Group O Negative Red Blood Cells.
- Additional stock uncrossmatched Group O Negative Red Blood Cell units are available to hospital from the Puget Sound Blood Center (PSBC) upon request.
- Regulations require the documentation of patient's identification and unit number when uncrossmatched units are released from the hospital lab. This obligates the completion of the Stock Uncrossmatched Blood Justification (SUBJ)/Uncrossmatched Blood Justification (UBJ) forms. Whether units are transfused or not, the ordering LIP must sign the form justifying release of uncrossmatched units; ideally the signature will be obtained by the conclusion of the event.
- While it is important to ensure that the correct blood be administered to the correct individual, in a life-threatening bleeding emergency, blood product delivery should never be delayed due to the absence of a pre-transfusion compatibility sample/ testing or electronic order form. Universal blood products (stock uncrossmatched O Negative RBCs and AB plasma) should be issued after verification of patient name and medical record number (MRN). In the rare event that patient's name is unknown; it is typical that a "Doe" name will be assigned and utilized.
- Anticipate immediate transfusion of all blood components on arrival. Plan to use a rapid infuser with a blood warmer to transfuse red blood cells and plasma to prevent worsening hypothermia. Warmers should not be used when transfusing platelets or cryoprecipitate. If a rapid infuser is not available, a standard fluid warmer may be considered if the desired rate of red blood cell and plasma does not exceed the maximum rate (typically 999mL/hr) the warmer and standard IV pump combination can accommodate.
- May consider the addition of adjunct therapies to OBH policies/protocols such as the use of Tranexamic Acid, etc., if it is not contraindicated. Other medical therapies may be appropriate based on clinical situation. PSBC medical consultation recommended (see below).
- Consultation with PSBC on call physician (206-292-6525 –option 3) is strongly recommended.

## **RESPONSIBILITIES:**

### **Puget Sound Blood Center**

- Perform pre-transfusion testing and secondary processing on blood components as ordered by provider
- Perform retrospective crossmatch for uncrossmatched units

- Issue blood component to hospital laboratory
- Conduct Suspected Transfusion Reaction work-up/follow-up
- Provide 24 hr/day transfusion related consultation when requested

### **Ordering LIP**

- Evaluate patient for potential transfusion-related therapies
- Order and evaluate laboratory testing
- Monitoring and treatment of patient
- Conduct informed consent for administration of blood components (as able in a bleeding emergency)
- Order blood component and provide administration/transfusion instructions and complete documentation
- Evaluate and manage patients experiencing a possible transfusion reaction

### **Hospital Laboratory**

- Collect and/or verify compatibility sample for acceptability
- Process order for testing – it is highly recommended that lab testing utilize point-of-care testing and other methods to optimize turn-around-times. (Chandler, WL; Transfusion 2010)
- Store blood components
- Issue blood components

### **Transfusionist**

- Assess patient prior to transfusion (per defined *Transfusion Assessment*). Depending on the urgency of the situation, degree of assessment may be altered.
- Provide patient education including the signs and symptoms of a transfusion reaction – Depending on the urgency of the situation, level and detail of education may be altered.
- Complete request for blood components delivery. This may at times be a retrospective completion if orders were placed verbally by the LIP.
- Perform two person verification of blood component at time of administration. This should occur even during urgent situations to assure the correct component is being administered to the correct patient.
- At the time of transfusion of uncrossmatched units, transfusion reports may not have patient specific information, and will require clinical staff to add the patient's name, hospital number, and unit number (if applicable)
- At minimum, the verification process prior to administration of a group O Negative uncrossmatched unit should include verification that the unit is labeled as Group O Negative uncrossmatched
- Administer blood component
- Monitor and evaluate patient during and after transfusion
- Document transfusion and patient's tolerance of the transfusion in the patient's medical record

All personnel who administer blood components must be trained to identify transfusion recipients and components, and to closely observe patients during and for a period of time after blood administration for signs and symptoms of a transfusion reaction.

**SUGGESTED SUPPLEMENTAL POLICIES /PROCEDURES and EQUIPMENT:**

- Emergency Hemorrhage Panel (see appendix)
- OB Hemorrhage Transfusion Kit
- OB Hemorrhage Transfusion Labels to distinguish OBH labs as priority
- OB Hemorrhage Documentation Flow sheet
- Rapid Transfuser/Fluid Warmer

**ASSEMBLE EQUIPMENT AND SUPPLIES:** Certain preparations should be conducted prior to starting a blood transfusion. These preparation steps are described here.

**Standard Pre-Transfusion Specimen Equipment**

- ✓ 7 mL EDTA (lavender or pink top) blood specimen tube
- ✓ Blood specimen requisition (“Request for Blood and Blood Components” form)
- ✓ Biohazard bag
- ✓ Pre-printed patient label

**OB Hemorrhage Transfusion Equipment**

- ✓ Two warm air convection blankets (example: Bair Huggers) if available
- ✓ Rapid Transfuser with warmer (example: Ranger, Belmont or Level 1) if available
- ✓ Rapid Transfuser administration tubing (if using rapid transfuser)
- ✓ Fluid warmer administration tubing (if using a warmer without a rapid infuser)
- ✓ Standard IV Pump (approved by manufacturer for the administration of blood components)
- ✓ Blood Administration Tubing Set with 170-260 micron filter (Y-set for multiple units, straight set (if available) for single use). Follow manufacturer’s instructions to determine maximum number of units approved for Y-Set. A new set should always be used for platelet transfusions. All blood component tubing expires 4 hours after the initiation of the first unit.
  
- ✓ OBH Kit
  - OBH policy
  - Laminated OBH algorithm
  - Documentation flow sheet
  - Role cards (see supplemental materials)
  - Red OBH Facilitator Vest
  - PSBC Request for Blood Requisition pre-completed with:
    - “Is the patient bleeding?” box checked “Yes”

- “Bleeding Emergency – OB Hemorrhage Protocol initiated” written on the form
- Five Lab Packets:
  - Five pre-completed manual/downtime hospital lab orders forms
    - Hemorrhage panel, iCal, Mg, ABG selected, indicate priority “STAT”, comments “bleeding emergency.”
  - Pre-Transfusion Compatibility Sample (type and crossmatch)
    - Tube must be labeled with Name, MRN, Date & Time of collection, and Phlebotomist ID and information on the specimen label must match the requisition information exactly to avoid sample rejection.
  - Five specimen(hospital specific) tube kits for serial collection of:
    - Emergency Hemorrhage Panel
    - iCal
    - Mg (Magnesium)
    - ABG
  - 5 biohazard bags
  - 5 “OBH” labels (to be placed on outside of biohazard bag)

## ACTIVATION OF OB HEMORRHAGE PROTOCOL (SEE APPENDIX D)

### Staff Roles

#### OBH Activator

1. Obtain OB Hemorrhage Kit
2. Assume role of, or designate "OBH Facilitator"
3. Assign OBH roles and distribute OBH role cards

#### OBH Facilitator

1. Call hospital laboratory and state: *"We are activating the OB Hemorrhage protocol in location \_\_\_\_\_ room number \_\_\_\_\_. I am requesting an OB Hemorrhage Pack, for patient \_\_\_\_\_, \_\_\_\_\_, MRN # \_\_\_\_\_ in bed \_\_\_\_\_ per Dr. \_\_\_\_\_ . I am the OB Hemorrhage Facilitator, my name is \_\_\_\_\_ and my contact number is \_\_\_\_\_."*
2. Apply red vest (from OBH kit)
3. Assume responsibility for communicating/facilitating all blood orders with hospital laboratory and updating laboratory if patient location should change
4. Assume responsibility for receiving and communicating all lab results
5. Anticipate a consultative call from PSBC physician. If not received or additional consultation needed, call 206-292-6525 (option 3) and provide patient information and provide a call back number, and indicate OBH protocol in progress.

#### Assisting RN/Anesthesiologist(s) (2-3 staff)

##### Lab Monitoring

1. Collect a pre-transfusion compatibility sample (type and crossmatch). This should be collected before any blood components are transfused if possible. If a hold sample was previously collected convert to Type and Screen or Type and Crossmatch
2. Collect baseline ABG, Magnesium, iCal, and Hemorrhage Panel at baseline and every 30 minutes until patient stabilized

##### Blood Preparation and Administration

1. Monitor patient vital signs and communicate results to recorder
2. Insert 2<sup>nd</sup> peripheral line (if a second line is not currently available; at least 2 IV lines are needed in a massive transfusion)
3. Infuse all products per protocol and LIP orders after initial lab draw
4. Use rapid infusion device with warmer per protocol (if available)
5. Apply Bair hugger (if available). If Bair hugger unavailable, use warm blankets.

#### Runner

1. Obtain standard equipment and massive transfusion equipment
2. Obtain the Rapid Infusion device (e.g. Ranger, Level I, Belmont) if available
3. Obtain fluid warmer (if not using rapid infuser)
4. Utilize pneumatic tube system or hand deliver (per hospital policy) all specimens to the lab and indicate that specimens are for an OBH patient

5. Communicate with the OBH Facilitator RN what samples have been delivered to the lab
6. Utilize pneumatic tube system or pick up (per hospital policy) additional blood components from the hospital blood bank lab and deliver them to the Facilitating RN

### **Recorder**

1. Facilitate lab orders (baseline and every 30 minutes-see appendix)
2. Facilitate component and administration orders for blood components (inquire about the ratio and priority/order for transfusion of components)
3. Using the documentation flow sheet, track what specimens were sent to the lab, the time the specimen was drawn and the results (lab flow section)
4. Using the documentation flow sheet, record volume of IV fluids and blood components [unit numbers, kind of component] infused
5. Record vital signs as reported by Primary RN
6. Document suspected transfusion reactions if applicable both on the flow sheet and the PSBC Suspected Transfusion Reaction (STR) Report. Facilitate collection of transfusion reaction labs if a STR is noted.
7. Ensure Stock Uncrossmatched Blood Justification (SUBJ)/Uncrossmatched Blood Justification (UBJ) form (requires ordering Provider's signature), Transfusion Reports (two signatures), and Documentation Flow sheet are completed.
8. Ensure transfusion reports of all transfused units are completed with patient name, MRN, unit numbers (if applicable), and signatures of transfusionist and 2<sup>nd</sup> verifier.

### **HANDOFFS**

Provide receiving RN with the following information:

1. Kinds of components transfused
2. Status of current transfusions
3. Components available for transfusion
  - a. Location of components
  - b. Status of administration orders
4. Current outstanding transfusion orders
5. Any suspected transfusion reactions
6. Important laboratory results [indicating response or need for further transfusion]

### **FOLLOW UP RECOMMENDATIONS**

1. After an OB Hemorrhage event, ensure OBH kit is re-stocked and returned to designated location.
2. Debrief:
  - a. After the event the staff involved will meet to evaluate the emergency and the response to it
  - b. Discussion will include what went well in addition to the lessons learned
  - c. Periodic protocol review is needed to ensure current practices are supported by the policy
  - d. Optimal use of the protocol involves teamwork between many professionals at a time of high stress
3. Quality Improvement Teams and Transfusion Committee review.

**APPENDIX D: OB HEMORRHAGE PROTOCOL ALGORITHM**

**APPENDIX E: OBH Role Cards**

**APPENDIX F: Image - OBH Vest**

**APPENDIX G: OBH Lab Specimen Labels**

**APPENDIX H: OBH Documentation Flow Sheet (front)**

**APPENDIX I: OBH Documentation Flow Sheet (back)**

**References**

- Standards for Blood Banks and Transfusion Services. Bethesda, MD: AABB current edition.
- AABB Technical Manual 17th edition, AABB, Bethesda, MD 20814
- PSBC Blood Administration Guidelines for King County Hospitals. Seattle, WA 2013.
- AABB Guidelines for Massive Transfusion, AABB, Bethesda, MD 20814
- California Maternal Quality Care Collaborative (CMQCC): Hemorrhage Taskforce (2009)

**Additional information may be obtained:**

- Puget Sound Blood Center Transfusion Service Physician on call  
24 hours per day/7 days per week. Phone: 206-292-6525 (option 3)
- Puget Sound Blood Center Crossmatch Lead (CTL Lead)
- 
- Policy development/Transfusion Safety, : Puget Sound Blood Center Transfusion Safety and Patient Blood Management Department; Monday – Friday from 8:00 a.m. to 5:00 p.m. Phone: 206-292-1840
- Hospital Laboratory
- [www.psbcc.org](http://www.psbcc.org)

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**APPENDIX A: GLOSSARY OF TERMS ASSOCIATED WITH BLOOD TRANSFUSION**

Term	Description						
<p><b>EHP (Emergency Hemorrhage Panel)</b></p> <p><b>Additional OBH Labs</b></p>	<p>Lab values that assist in the treatment and monitoring during bleeding emergencies</p> <p>Lab results in an EHP should be available in less than 30 minutes. PSBC is available to consult in developing a process to meet this expectation.</p> <p>Hct/Hgb Platelet count PT/INR Fibrinogen</p> <p>Ionized Calcium Magnesium ABG Type and Crossmatch (one time)</p>						
<p><b>OB Hemorrhage Protocol</b></p>	<p>Activated when:</p> <table border="1" data-bbox="478 760 2001 1463"> <tr> <td data-bbox="478 760 716 1130"> <p>Stage 0</p> </td> <td data-bbox="716 760 2001 1130"> <p>Every woman in labor/ giving birth</p> <ul style="list-style-type: none"> <li>• Low Risk: Hold Sample</li> <li>• If Medium Risk: Type &amp; Screen</li> <li>• If High Risk: Type and Crossmatch 2 or more RBC units</li> <li>• If Positive Antibody Screen (prenatal or current, exclude low level anti-D from Rhlg): Type &amp; Crossmatch 2 or more RBC units</li> </ul> </td> </tr> <tr> <td data-bbox="478 1130 716 1321"> <p>Stage 1</p> </td> <td data-bbox="716 1130 2001 1321"> <p>Blood Loss: &gt;500mL vaginal <u>or</u> &gt;1000mL Cesarean, <u>or</u> VS changes (by &gt;15% <u>or</u> HR ≥ 110, BP ≤85/45, O2 sat &lt;95%)</p> <ul style="list-style-type: none"> <li>• Type and Crossmatch 2 or more RBC units (if not already done)</li> </ul> </td> </tr> <tr> <td data-bbox="478 1321 716 1463"> <p>Stage 2</p> </td> <td data-bbox="716 1321 2001 1463"> <p>Continued bleeding or continued Vital Sign instability, and total blood loss under 1500mL</p> <ul style="list-style-type: none"> <li>• Notify Hospital Lab of OB Hemorrhage</li> </ul> </td> </tr> </table>	<p>Stage 0</p>	<p>Every woman in labor/ giving birth</p> <ul style="list-style-type: none"> <li>• Low Risk: Hold Sample</li> <li>• If Medium Risk: Type &amp; Screen</li> <li>• If High Risk: Type and Crossmatch 2 or more RBC units</li> <li>• If Positive Antibody Screen (prenatal or current, exclude low level anti-D from Rhlg): Type &amp; Crossmatch 2 or more RBC units</li> </ul>	<p>Stage 1</p>	<p>Blood Loss: &gt;500mL vaginal <u>or</u> &gt;1000mL Cesarean, <u>or</u> VS changes (by &gt;15% <u>or</u> HR ≥ 110, BP ≤85/45, O2 sat &lt;95%)</p> <ul style="list-style-type: none"> <li>• Type and Crossmatch 2 or more RBC units (if not already done)</li> </ul>	<p>Stage 2</p>	<p>Continued bleeding or continued Vital Sign instability, and total blood loss under 1500mL</p> <ul style="list-style-type: none"> <li>• Notify Hospital Lab of OB Hemorrhage</li> </ul>
<p>Stage 0</p>	<p>Every woman in labor/ giving birth</p> <ul style="list-style-type: none"> <li>• Low Risk: Hold Sample</li> <li>• If Medium Risk: Type &amp; Screen</li> <li>• If High Risk: Type and Crossmatch 2 or more RBC units</li> <li>• If Positive Antibody Screen (prenatal or current, exclude low level anti-D from Rhlg): Type &amp; Crossmatch 2 or more RBC units</li> </ul>						
<p>Stage 1</p>	<p>Blood Loss: &gt;500mL vaginal <u>or</u> &gt;1000mL Cesarean, <u>or</u> VS changes (by &gt;15% <u>or</u> HR ≥ 110, BP ≤85/45, O2 sat &lt;95%)</p> <ul style="list-style-type: none"> <li>• Type and Crossmatch 2 or more RBC units (if not already done)</li> </ul>						
<p>Stage 2</p>	<p>Continued bleeding or continued Vital Sign instability, and total blood loss under 1500mL</p> <ul style="list-style-type: none"> <li>• Notify Hospital Lab of OB Hemorrhage</li> </ul>						

		<ul style="list-style-type: none"> <li>• Bring 2 RBC units to bedside, transfuse per clinical signs – do not wait for lab values</li> <li>• Use blood warmer for transfusion (RBC and Plasma only)</li> <li>• Consider thawing 2 plasma, use if transfusing &gt;2 units RBC</li> <li>• Determine availability of additional RBCs and other components (plasma, platelets, cryo)</li> </ul>
	<p>Stage 3</p>	<p>Total blood loss over 1500mL, <u>or</u> &gt;2 units RBCs given <u>or</u> VS unstable <u>or</u> suspicion of DIC</p> <hr/> <p>Transfuse Aggressively</p> <p>Order OB Hemorrhage Pack</p> <ul style="list-style-type: none"> <li>• For every 1 RBC, give 1 plasma</li> <li>• For every 6 RBCs, give 1 apheresis platelet and 1-2 cryo pools</li> <li>• Adjunct therapies may be considered for unresponsive coagulopathy – PSBC consultation recommended</li> </ul>
<p><b>OB Hemorrhage Pack</b></p>	<p>Blood Components requested with the activation of a OB Hemorrhage Protocol</p> <p>Includes:</p> <ul style="list-style-type: none"> <li>○ <u>6 (six) units Leukoreduced Red Blood Cells (equivalent to CMV negative)</u></li> </ul> <p>Uncrossmatched Type O Negative (if type specific units are not immediately available)</p> <p>ABO Compatible Crossmatched (if valid sample available and compatible units available). If no sample, Group O Negative Uncrossmatched RBC units will be issued. Efforts should be made to collect a 7mL EDTA sample prior to the transfusion of uncrossmatched units to facilitate a retrospective crossmatch</p> <ul style="list-style-type: none"> <li>○ <u>6 (six) units Plasma</u></li> </ul> <p>“Universal Type” Plasma (AB) will be issued if type specific not immediately available.</p> <ul style="list-style-type: none"> <li>○ <u>1 (one) Leukocyte Reduced Apheresis Platelet (equivalent to CMV negative)</u></li> </ul>	

	<ul style="list-style-type: none"> <li>○ <u>2 (two) Cryoprecipitate Pools (6 units/pool)</u></li> </ul>
<b>OB Hemorrhage Transfusion Triggers &amp; Goals</b>	<p>Initial transfusions may begin empirically.</p> <p>Laboratory Guidelines for initiations of transfusions</p> <ul style="list-style-type: none"> <li>○ Fibrinogen &lt; 150mg/dL, or if DIC is suspected- transfuse two cryo pools. One cryo pool will increase fibrinogen by 45mg/dL.</li> <li>○ Platelets &lt; 100,000 – transfuse one apheresis platelet unit. One apheresis unit will increase platelet count by 20,000-50,000.</li> <li>○ INR ≥ 1.6 – transfuse 4-6 units of plasma</li> <li>○ Transfuse RBCs consistent with clinical condition, consult PSBC Physician on call.</li> </ul> <p>Goals for patient at risk for ongoing bleeding:</p> <ul style="list-style-type: none"> <li>○ Core Temperature &gt;35.9C</li> <li>○ pH &gt; 7.3</li> </ul>
<b>PSBC Puget Sound Blood Center</b>	<p>Centralized transfusion service for King County, responsible for testing, storing, and issuing ordered blood components.</p>
<b>Transfusion Reaction</b>	<p>Any adverse event which occurs during or following a blood component transfusion.</p>

**APPENDIX C: Emergency Blood Component Order Classifications (non – Hemosafe hospitals)**

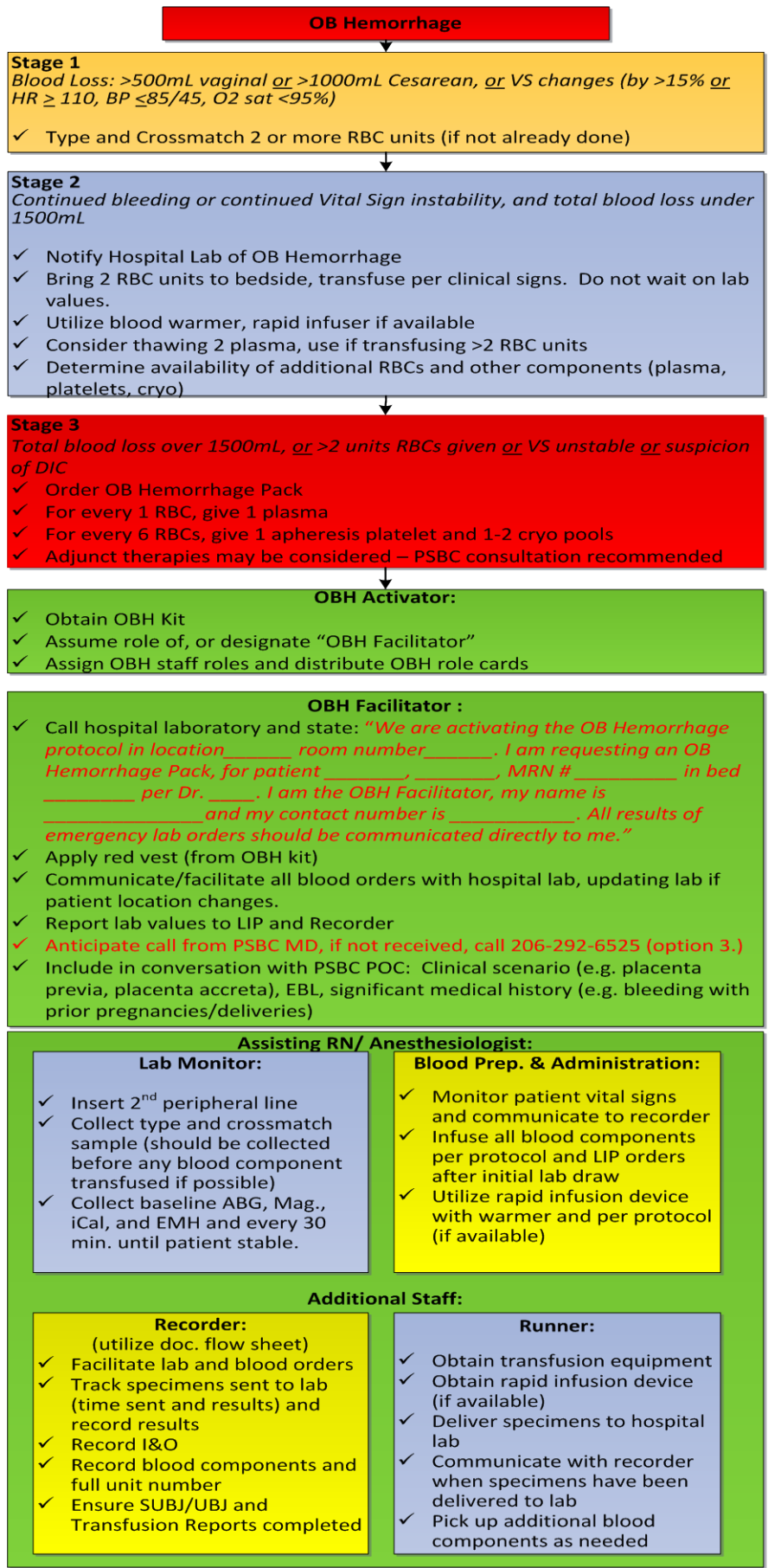
NOTE: Additional information about blood components is available on the Puget Sound Blood Center website [www.psbcenter.org](http://www.psbcenter.org)

Component				
<p><b>Emergency Red Blood Cells (RBC)</b></p>	<p><b>Emergency</b></p> <ul style="list-style-type: none"> <li>○ Call hospital laboratory and request Stock Uncrossmatched Group O Negative RBCs or ABO type specific Emergency Uncrossmatched RBCs.</li> <li>○ The provider will be required to follow-up with a completed/signed “Uncrossmatched Blood Justification” form (PSBC form #99-32060 or 99-32061)</li> </ul>	<p><b>Stock Uncrossmatched RBCs</b></p> <ul style="list-style-type: none"> <li>○ Hospital Laboratory stores Stock Uncrossmatched Group O Negative Red Blood Cells for use in a life threatening emergency</li> <li>○ A 7 mL EDTA (lavender or pink top) blood specimen MUST be collected from the patient BEFORE transfusion, if possible. This specimen will be used to perform the required “Retrospective Crossmatch” to confirm transfused units were, in fact, compatible for the patient.</li> </ul>	<p><b>Emergency Uncrossmatched RBCs</b></p> <ul style="list-style-type: none"> <li>○ For unstable patients with urgent need for blood, ABO/Rh type specific RBCs issued by PSBC <b><u>within 30-45 minutes or sooner</u></b> of receipt of specimen or phone order— before the completion of the Antibody Screen and crossmatch. Typically follows stock uncrossmatched units, if crossmatched units are not yet available.</li> <li>○ A 7 mL EDTA (pink or purple top) blood specimen is needed unless a previous specimen was collected within the last 3 days.</li> <li>○ The Antibody Screen and crossmatch will be completed within 60 minutes of issue (may take longer if patient has antibodies for antibody identification).</li> <li>○ PSBC will notify hospital laboratory immediately if an incompatibility is discovered (and incompatible RBCs will be issued).</li> </ul>	<p><b>Emergency Crossmatched RBCs</b></p> <ul style="list-style-type: none"> <li>○ For stable patients with an urgent need for blood. RBCs are issued by PSBC fully crossmatch compatible <b><u>within 1 hour</u></b> of receipt of order if no red cell antibodies found upon screening</li> <li>○ A 7 mL EDTA (pink or purple top) blood specimen is needed unless a previous specimen was collected within the last 3 days.</li> </ul>
<p><b>Emergency Plasma (Thawed Plasma or Fresh</b></p>	<p><b>“Universal Type” Plasma (Group AB)</b></p> <ul style="list-style-type: none"> <li>○ Bleeding emergencies</li> <li>○ When it is determined</li> </ul>	<p><b>Emergency ABO Compatible Plasma</b></p> <ul style="list-style-type: none"> <li>○ An existing patient blood type on file at Puget Sound Blood Center.</li> <li>○ The expected turn-around-time if</li> </ul>		

<p><b>Frozen Plasma/FFP)</b></p>	<p>that there is <i>no patient blood type on file at Puget Sound Blood Center.</i></p> <ul style="list-style-type: none"> <li>○ The expected turn-around-time if issued from PSBC is <b>20-45 minutes</b> of request receipt by PSBC.</li> </ul> <p><b>Note: Group AB plasma is obtained from blood group AB donors, whose blood type is the rarest and represent the lowest percentage of donation. This product is <u>never</u> to be requested for routine transfusion.</b></p>	<p>issued from PSBC is <b>20-45 minutes</b> of request receipt by PSBC.</p>		
<p><b>Emergency Platelets</b></p>	<p><b>Emergency – “Type Compatible” Platelets:</b></p> <ul style="list-style-type: none"> <li>○ Pooled platelets or platelets collected from a single donor by apheresis that are indicated for: <ul style="list-style-type: none"> <li>● Bleeding emergencies or pending emergency invasive procedures <i>with the intent to transfuse immediately</i></li> <li>● Where there is an existing patient</li> </ul> </li> </ul>	<p><b>Emergency – “Universal Type” (Group A or AB) Platelets</b></p> <ul style="list-style-type: none"> <li>○ Pooled platelets or platelets collected from a single donor by Apheresis that are indicated for: <ul style="list-style-type: none"> <li>● Extreme bleeding emergencies or pending emergency invasive procedures <i>with the intent to transfuse immediately</i></li> <li>● When it is determined there is <u><i>no patient blood type on file</i></u> at Puget Sound Blood Center.</li> </ul> </li> <li>○ The expected turn-around-time of an Apheresis platelet if issued from PSBC is <b>20-45 minutes</b> of request receipt by PSBC. Turnaround time for pooled platelets is longer and</li> </ul>		

	<p>blood type on file at Puget Sound Blood Center.</p> <p>The expected turn-around-time if issued from PSBC is <b>within 1 hour</b> of request by PSBC.</p>	<p>should not be ordered for bleeding emergencies unless Apheresis platelets are unavailable.</p>		
<p><b>Emergency Cryoprecipitate</b></p>	<p><b>Emergency Cryoprecipitate:</b></p> <ul style="list-style-type: none"> <li>○ Bleeding emergencies or pending emergency invasive procedures <b>with the intent to transfuse immediately</b></li> </ul> <p>The expected turn-around-time if issued from PSBC is <b>20-30 minutes</b> of request receipt by PSBC.</p>			

# APPENDIX D: OB Hemorrhage Transfusion Protocol Algorithm



**Important Contact Numbers:**

PSBC Physician On-Call  
206-292-6525 (option 3)

Hospital Laboratory:  
####

Hospital Blood Bank:  
####

Rapid Response Team:  
####

Code Blue Activation:  
####

**Ordering Provider:  
Transfusion Guidelines**

**Initial transfusions may begin empirically**

**If No Lab Values:**

- Consider transfusing all components in OBH pack on arrival from lab.
- If suspect DIC, prioritize transfusion of 2 cryo pools

**General Ratio Guidelines:**

- Every 1 RBCs, give 1 Plasma
- Every 6 RBCs, give 1 Apheresis Platelet and 1-2 Cryo pools

**Fibrinogen <150:**  
Transfuse 2 Pooled Cryo units \*prioritize

**INR ≥ 1.6:**  
Transfuse 4-6 Plasma units

**Platelets <100,000 u/L:**  
Transfuse 1 Aph. Platelets

**Transfuse 1-6 RBC Units consistent with clinical condition of patient**

**Order STAT and q30 minutes:**  
Emergency Hem Panel: (includes) Hct, Platelet PT/INR, and Fibrinogen  
**and**  
Ionized Calcium  
Magnesium  
ABG  
Type and Crossmatch (one time only)

**Goals:**  
Core Temp > 35.9C  
pH > 7.3

Cut & Laminate

**OBH Facilitator :**

- ✓ Call hospital laboratory and state: *"We are activating the OB Hemorrhage protocol in location \_\_\_\_\_ room number \_\_\_\_\_. I am requesting an OB Hemorrhage Pack, for patient \_\_\_\_\_, \_\_\_\_\_, MRN # \_\_\_\_\_ in bed \_\_\_\_\_ per Dr. \_\_\_\_\_. I am the OBH Facilitator, my name is \_\_\_\_\_ and my contact number is \_\_\_\_\_. All results of emergency lab orders should be communicated directly to me."*
- ✓ Apply red vest (from OBH kit)
- ✓ Communicate/facilitate all blood orders with hospital lab, updating lab if patient location changes.
- ✓ Report lab values to LIP and Recorder
- ✓ *Anticipate call from PSBC MD, if not received, call 206-292-6525 (option 3.)*
- ✓ Include in conversation with PSBC POC: Clinical scenario (e.g. placenta previa, placenta accreta), EBL, significant medical history (e.g. bleeding with prior pregnancies/deliveries)

**Lab Monitor:**

- ✓ Insert 2<sup>nd</sup> peripheral line
- ✓ Collect type and crossmatch sample (should be collected before any blood component transfused if possible)
- ✓ Collect baseline ABG, Mag., iCa, and EMH and every 30 min. until patient stable.

**Blood Prep. & Administration:**

- ✓ Monitor patient vital signs and communicate to recorder
- ✓ Infuse all blood components per protocol and LIP orders after initial lab draw
- ✓ Utilize rapid infusion device with warmer and per protocol (if available)

**Recorder:**  
(utilize doc. flow sheet)

- ✓ Facilitate lab and blood orders
- ✓ Track specimens sent to lab (time sent and results) and record results
- ✓ Record I&O
- ✓ Record blood components and full unit number
- ✓ Ensure SUBJ/UBJ and Transfusion Reports completed

**Runner:**

- ✓ Obtain transfusion equipment
- ✓ Obtain rapid infusion device (if available)
- ✓ Deliver specimens to hospital lab
- ✓ Communicate with recorder when specimens have been delivered to lab
- ✓ Pick up additional blood components as needed



**APPENDIX F: OBH Vests**



**OB Hemorrhage  
Protocol**

**Initial Draw**

**Initial Draw**

**OB Hemorrhage  
Protocol**

**30 Minute Draw**

**30 Minute Draw**

**OB Hemorrhage  
Protocol**

**60 Minute Draw**

**60 Minute Draw**

**OB Hemorrhage  
Protocol**

**90 Minute Draw**

**90 Minute Draw**

**OB Hemorrhage  
Protocol**

**120 Minute Draw**

**120 Minute Draw**

Appendix H: OBH Documentation Flow Sheet (front)

Date \_\_\_\_\_

**OB HEMORRHAGE PROTOCOL  
DOCUMENTATION FLOWSHEET**

ADMINISTERED BLOOD COMPONENTS							
	UNIT # STICKER	INDICATE ✓ COMPONENT TYPE	START TIME	STOP TIME	VOLUME* (mL)	TXN RXN? YES/NO	RN/ MD INITIALS
1		<input type="checkbox"/> RBC <input type="checkbox"/> PLASMA <input type="checkbox"/> CRYO <input type="checkbox"/> PLATELETS					
2		<input type="checkbox"/> RBC <input type="checkbox"/> PLASMA <input type="checkbox"/> CRYO <input type="checkbox"/> PLATELETS					
3		<input type="checkbox"/> RBC <input type="checkbox"/> PLASMA <input type="checkbox"/> CRYO <input type="checkbox"/> PLATELETS					
4		<input type="checkbox"/> RBC <input type="checkbox"/> PLASMA <input type="checkbox"/> CRYO <input type="checkbox"/> PLATELETS					
5		<input type="checkbox"/> RBC <input type="checkbox"/> PLASMA <input type="checkbox"/> CRYO <input type="checkbox"/> PLATELETS					
6		<input type="checkbox"/> RBC <input type="checkbox"/> PLASMA <input type="checkbox"/> CRYO <input type="checkbox"/> PLATELETS					
7		<input type="checkbox"/> RBC <input type="checkbox"/> PLASMA <input type="checkbox"/> CRYO <input type="checkbox"/> PLATELETS					
8		<input type="checkbox"/> RBC <input type="checkbox"/> PLASMA <input type="checkbox"/> CRYO <input type="checkbox"/> PLATELETS					
9		<input type="checkbox"/> RBC <input type="checkbox"/> PLASMA <input type="checkbox"/> CRYO <input type="checkbox"/> PLATELETS					
10		<input type="checkbox"/> RBC <input type="checkbox"/> PLASMA <input type="checkbox"/> CRYO <input type="checkbox"/> PLATELETS					

Initials	Signature	Date	Time
Initials	Signature	Date	Time
Initials	Signature	Date	Time

\*Estimated volumes: RBC = 350mL, Plasma = 250mL, Platelets 300mL, Cryo = 120mL

**Appendix H: OBH Documentation Flow Sheet (back)**

Schedule	Time Collected	Time Resulted	OB Hemorrhage Lab Values	
<b>Baseline</b>			<input type="checkbox"/> Type and Crossmatch (one time only) <input type="checkbox"/> Hct/Hgb _____ / _____ <input type="checkbox"/> Platelet Count _____ <input type="checkbox"/> PT/INR _____ / _____ <input type="checkbox"/> Fibrinogen _____	<input type="checkbox"/> iCal _____ <input type="checkbox"/> Mag _____ <input type="checkbox"/> ABG: pH _____ PaCO2 _____ PaO2 _____ HCO3 _____ O2Sat _____ BE _____
<b>30 Minute</b>			<input type="checkbox"/> Hct/Hgb _____ / _____ <input type="checkbox"/> Platelet Count _____ <input type="checkbox"/> PT/INR _____ / _____ <input type="checkbox"/> Fibrinogen _____	<input type="checkbox"/> iCal _____ <input type="checkbox"/> Mag _____ <input type="checkbox"/> ABG: pH _____ PaCO2 _____ PaO2 _____ HCO3 _____ O2Sat _____ BE _____
<b>60 minutes</b>			<input type="checkbox"/> Hct/Hgb _____ / _____ <input type="checkbox"/> Platelet Count _____ <input type="checkbox"/> PT/INR _____ / _____ <input type="checkbox"/> Fibrinogen _____	<input type="checkbox"/> iCal _____ <input type="checkbox"/> Mag _____ <input type="checkbox"/> ABG: pH _____ PaCO2 _____ PaO2 _____ HCO3 _____ O2Sat _____ BE _____
<b>90 minutes</b>			<input type="checkbox"/> Hct/Hgb _____ / _____ <input type="checkbox"/> Platelet Count _____ <input type="checkbox"/> PT/INR _____ / _____ <input type="checkbox"/> Fibrinogen _____	<input type="checkbox"/> iCal _____ <input type="checkbox"/> Mag _____ <input type="checkbox"/> ABG: pH _____ PaCO2 _____ PaO2 _____ HCO3 _____ O2Sat _____ BE _____
<b>Next 30 minutes</b>			<input type="checkbox"/> Hct/Hgb _____ / _____ <input type="checkbox"/> Platelet Count _____ <input type="checkbox"/> PT/INR _____ / _____ <input type="checkbox"/> Fibrinogen _____	<input type="checkbox"/> iCal _____ <input type="checkbox"/> Mag _____ <input type="checkbox"/> ABG: pH _____ PaCO2 _____ PaO2 _____ HCO3 _____ O2Sat _____ BE _____