This document summarizes Intermountain’s Surgical Services Clinical Program 2011 blood utilization board goal and outlines a process to ensure that indications for packed red blood cell (PRBC) transfusion are captured appropriately. This initiative is being piloted in 2011 in the following hospitals, with system-wide implementation in 2012:

- Intermountain Medical Center
- LDS Hospital
- Dixie Regional Medical Center

**Why Focus ON RESTRICTIVE RED BLOOD CELL USE?**

**The evidence:** Many patients are given allogenic red blood cell transfusions as part of their treatment. However, there are risks associated with exposure to allogenic blood — including infection, allergic reactions, fever, and death — so physicians try to avoid giving blood unless necessary. **Restrictive red cell transfusion practice** is an approach to give transfusion only if certain hematocrit (HCT) and/or hemoglobin (HB) thresholds are met at the time of transfusion. This approach is supported by the following evidence:

- A **Cochrane meta-analysis** of 9 clinical trials showed that implementing a restrictive PRBC transfusion practice decreased the probability of PRBC transfusion by 42%, and the volume of PRBCs transfused was reduced without compromising patient outcomes.¹

- **Surgical Services Clinical Programs**, in 2009, implemented a standardized order set for ordering PRBCs and educated physicians on the benefits of a restrictive PRBC transfusion process. The outcome of these interventions has shown a significant decrease in PRBC utilization through 2009 and 2010.

**Intermountain’s efforts:** Surgical Services has been working for the past 3 years to redesign the entire blood utilization process in HELP. The newly developed documentation program will enable ordering, requesting, and documentation of blood products, including PRBCs. Using the HELP system to “capture” and document transfusion indications will give us a better understanding of exactly when and how blood is being used and help us design appropriate restriction programs moving forward. Data gathered will also enable us to measure clinical outcomes in relation to blood utilization.

**Note:** The Joint Commission is recommending new measures to support patient blood management. Among these measures is documentation of indications for red blood cell transfusion.²
**Algorithm: Capturing PRBC Transfusion Indications**

**Physician**

Order blood using Intermountain’s “Blood Transfusion Orders”

1. Record primary indication(s) and note recommended thresholds for transfusion. See sidebar.
2. Consider thresholds when determining whether and how much blood to order. Order the minimum number of units needed to achieve target HCT/HB.

**Nurse**

Verify and document indication

1. At the time of the initial order, verify and document in HELP:
   - The indication for the transfusion
   - The ordering MD
2. At the time of transfusion, verify and document in HELP:
   - The indication for the transfusion
   - The transfusing MD

If the order doesn’t have an indication, call the physician to get one!

**Clinical Program**

Communicate process and progress through regular reports

Over the course of the study period, generate reports to show:

- Use of blood by system, hospital, unit, and physician
- The clinical situation at time of transfusion (vital signs, lab values)
- Specific information about the transfusion (start, stop, time to infuse, double check, adverse reactions)

Web-based reports will be available to show progress on adherence to transfusion documentation and decreasing PRBC utilization.

**Indications and Thresholds**

<table>
<thead>
<tr>
<th>Indication</th>
<th>Threshold HCT/HB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asymptomatic anemia</td>
<td>21/7</td>
</tr>
<tr>
<td>Tachycardia, tachypnea, orthostasis, and/or syncope with no explanation other than anemia</td>
<td>24/8</td>
</tr>
<tr>
<td>Marrow suppressive therapy</td>
<td>27/9</td>
</tr>
<tr>
<td>To reduce cardiac stress in severe CHF</td>
<td>30/10</td>
</tr>
<tr>
<td>Global tissue ischemia manifested by hemodynamic instability or elevated lactic acid (greater than 4mmol/L)</td>
<td>30/10</td>
</tr>
<tr>
<td>Local ischemic disease of heart or brain</td>
<td>30/10</td>
</tr>
<tr>
<td>Infants with cyanotic heart disease</td>
<td>30/10</td>
</tr>
<tr>
<td>Infants less than 4 months with cardiac or pulmonary disease</td>
<td>45/15</td>
</tr>
<tr>
<td>Active bleeding or loss</td>
<td>as needed</td>
</tr>
<tr>
<td>Extracorporeal prime</td>
<td>as needed</td>
</tr>
</tbody>
</table>

**References**


These guidelines apply to common clinical circumstances, and may not be appropriate for certain patients and situations. The treating clinician must use judgement in applying guidelines to the care of the individual patients. For information about this document, contact Matt Peters at 801-442-3703.